QP Code: 4001

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2011

Subject: Human Anatomy and Physiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   **2x15=30 Marks**

1. What is meant by coagulation? Give the normal clotting time. Explain   (2+1+7+5)
    the mechanism of clotting and factors affecting it. Add a note on
    disorders of coagulation.

2. Explain the anatomical features of respiratory system. Explain the   (7+8)
    regulation of respiration.

3. Define and give the normal values of blood pressure. Explain the various   (3+12)
    factors controlling the blood pressure.

II.   SHORT ESSAY (Answer any SIX questions)   **6x5=30 Marks**

4. What is meant by lymph? Give its composition and functions.

5. Write a note on epithelial tissues.

6. Name the hormones secreted by pancreas. How is blood glucose
    regulated?

7. Give the composition and factors controlling the secretion of saliva.

8. Write a note on renin angiotensin and aldosterone system.

9. List the cranial nerves and give their functions.

10. Draw a neat labeled diagram of skin.

11. Explain the physiological functions of oestrogen.

III.   SHORT ANSWERS (Answer any FIVE questions)   **5x2=10 Marks**

12. What are ion channels? Give examples.

13. Name the bones of knee joint.

14. Define neurotransmitters and give examples.

15. Name the nerves of deglutition.

16. State the physiological properties of skeletal muscle.

17. List the drugs used by athletes.

18. Name the disorders of growth hormone.

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QP Code: 4002

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2011

Subject: Pharmaceutics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. What is extraction? Explain its importance. Explain the continuous hot   (2+3+8+2)
    percolation method of extraction. Draw a neat diagram.
2. What are monophasic dosage forms? Explain the various additives   (2+8+2½+2½)
    added to it. Describe the preparation of a mouth wash and a gargle in
    detail.
3. What are suppositories? Describe the method of preparation of   (2+5+3+5)
    suppositories. Classify different types of suppository bases. Write their
    advantages and disadvantages.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Enlist the various tests used to identify the type of an emulsion and
    explain them briefly.
5. Define isotonicity and give its significance. Enlist the techniques used for
    adjusting tonicity of a solution and explain any one of them.
6. Explain the development of Pharmaceutical Industry in India.
7. Write a brief note on the development of Indian Pharmacopoeia and the
    salient features of IP 2007.
8. Enlist and explain briefly the parts of prescriptions.
9. Explain the objectives of designing of any dosage form and broadly
    classify the dosage forms with examples.
10. Explain the types of physical incompatibility with appropriate examples.
11. Describe the sterilization of surgical catgut.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. What are eutectic powders?
13. Write the differences between a lotion and a liniment.
14. Define emulsion and suspension.
15. Define proof spirit.
16. How much quantity of 60% and 45% of alcohol required for making 60 ml
    of 50% of alcohol?
17. Define posology.
18. Write the differences between powders and granules.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2011

Subject: Medicinal Biochemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   **2x15=30 Marks**

1. Describe the reaction sequences involved in the synthesis and   (12+3)
    breakdown of glycogen and write about the regulation of these
    processes.
2. Explain in details the various factors affecting the enzyme activity. Add a   (10+5)
    note on enzyme specificity.
3. Along with precursors required for biosynthesis of purine nucleotides,   (3+12)
    explain the denovo biosynthesis of adenylic acid.

II.   SHORT ESSAY (Answer any SIX questions)   **6x5=30 Marks**

4. Explain the test to assess the detoxification ability of liver.
5. Give the biosynthesis, degradation and biological significance of cyclic
    AMP.
6. Describe ketogenesis. Give its significance.
7. Explain the oxidative deamination along with its significance.
8. Define mutation. Explain different types of mutations along with repair
    mechanism.
9. Compare and contrast competitive and non competitive enzyme
    inhibition.
10. Write short notes on high energy compounds.
11. Give the mitochondrial reactions of β-oxidation of fatty acids.

III.   SHORT ANSWERS (Answer any FIVE questions)   **5x2=10 Marks**

12. Give the biochemical functions of nicotinamide co-enzymes.
13. Significance of HMP shunt path way.
14. Define hyperbilirubinemia. Under which condition does it occur?
15. What is ketoacidosis?
16. What is nitrogen balance?
17. What is ELISA? Mention its two uses.
18. Write the energetics of TCA cycle.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2011

Subject: Pharmaceutical Organic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   **2x15=30 Marks**

1. a) Define peroxide effect. Give the mechanism of addition of hydrogen   (2+6)
       bromide to propene in the presence of peroxide.
    b) Define and classify isomerism with suitable examples.   (2+5)

2. a) Define carbonyl compounds. Give the mechanism of benzoin   (2+6)
       condensation.
    b) Define aromaticity. Give the general mechanism of electrophilic   (2+5)
       substitution reactions of benzene.

3. a) What are alkanes? Explain the mechanism involved in the chlorination   (2+6)
       of methane in the presence of diffused sunlight.
    b) What are alkyl halides? Give any two methods for the preparation of   (2+5)
       them from alcohols.

II. SHORT ESSAY (Answer any SIX questions)   **6x5=30 Marks**

4. Toluene on nitration gives mainly ortho and para substituted products
    comment.

5. What are alicyclic compounds? Give any two methods of preparation for   (2+3)
    them.

6. Explain the effect of hydrogen bonding on the boiling point and water   (2½+2½)
    solubility of organic compounds.

7. Outline the conversion of carboxylic acids into their functional derivatives.

8. Write a note on diazotization.

9. What are carbohydrates? Classify them with examples.   (2+3)

10. Define and explain the mechanism of Kolbe's reaction.   (2+3)

11. Comment on the effect of temperature on 1, 2- and 1, 4- additions in
    conjugated dienes.

III. SHORT ANSWERS (Answer any FIVE questions)   **5x2=10 Marks**

12. Name two colour reactions of proteins.

13. Write the structure of   a) 2-Butenal   b) Isopropyl alcohol.

14. Which is more stable: *trans* -2 – butene or *cis* – 2- butene? Why?

15. How would you account for the fact that CCl_4 has no dipole moment,
    $CHCl_3$ has a dipole moment?

16. Write the IUPAC name of a) Acetamide b) Formaldehyde.

17. What is the effect of electron withdrawing substituents on the acidity of
    phenol?

18. Write the structure of a) Furan b) Thiophene c) Pyridine d) Quinoline.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2011

Subject: Pharmaceutical Inorganic Chemistry

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   **Max. Marks: 70**

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. a) Describe the principle and procedure involved in the limit test for heavy   (10)
    metals.
    b) Write the method of preparing solutions in the limit test for chlorides   (5)
    and sulphates.

2. a) What are Non aqueous solvents? Classify them.   (8)
    b) Write the principle and procedure involved in the assay of sodium   (7)
    benzoate.

3. a) Describe the methods for preparing standard solutions.   (8)
    b) Write the principle and procedure involved in the preparation and   (7)
    standardization of 0.1N HCl.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. What are the general characters of oxidation reduction titrations?

5. Write the method of preparation and assay of potassium iodide.

6. What are the ideal characters of antacids? Write the principle involved in
    the assay of $Al(OH)_3$ gel.

7. What is gravimetry? Explain the procedure involved in the assay of
    barium sulfate.

8. What are electrolyte replenishers? Write a note on ORS.

9. Explain modified Volhard's method with an example.

10. Describe sources of errors.

11. Explain trace elements with suitable example.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Explain the role of HNO_3 in the limit test for chlorides.

13. Explain the reason for using H_2SO_4 in permanganometric titrations.

14. How do you prepare 0.1N $KMnO_4$ solution?

15. Define cathartics and write the preparation of $MgSO_4$.

16. What are desensitizing agents?

17. Explain half-life with suitable example.

18. Define accuracy and precision.

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JSS UNIVERSITY, MYSORE
First Year Pharm.D. Examination - May 2011
Subject: Remedial Mathematics

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   a) Solve the following system of equations, by matrix method:
        x - y - 2z = 3, 2x + y + z = 5, 4x - y − 2z = 11.

     b) Obtain the equation of the straight line in the form y = mx + c.

     c) Find $\frac{dy}{dx}$, if x=a cos³t, y=b sin³t.

2.   a) Prove that $\lim\limits_{\theta \to 0} \frac{\sin\theta}{\theta}$ = 1, θ is in radians and $0 < \theta < \frac{\pi}{2}$

     b) Solve: $3e^x$ tany dx + (1-e^x)sec²y dy = 0.

     c) Find the acute angle between the lines 9x+3y-5=0 and 2x+4y+3=0.

3.   a) Solve by Cramer's rule: x+2y-z=1, 3x+5y-2z=5, 2x+6y+3z=-2.

     b) Find the equation of the circle, two of whose diameters are 2x+y-5=0
        and x+2y-7=0 and passing through the point (1, -3).

     c) Solve the triangle ABC, given b=2, c=$\sqrt{3}$ +1, A=30⁰.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Find the inverse of the matrix: $\begin{bmatrix} \cos\theta & -\sin\theta & 0 \\ \sin\theta & \cos\theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$

5.   In any triangle ABC, prove that $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = 2R$, where R is
     the circum radius of the triangle ABC.

6.   Solve : $\frac{dy}{dx} + y \cot x = \cos x$.

7.   If $y = e^{m \cos^{-1} x}$ show that (1-x²)y_2-xy_1-m²y=0.

8.   Evaluate : $\int \frac{2x-3}{x^2+3x-18} = dx$.

9.   If $f(t) = \begin{cases} 1, & 0 < t < 2 \\ t, & 2 < t < 4 \\ t^2, & t > 4 \end{cases}$ find L{f(t)}.

10. Verify Cayley-Hamilton theorem for the matrix $\begin{bmatrix} 1 & 2 \\ 3 & 2 \end{bmatrix}$

11. Differentiate w.r.t. 'x', $x^{sinx} + (sinx)^x$.

PTO

III. SHORT ANSWERS (Answer any FIVE questions)   **5x2=10 Marks**

12. If $A=\begin{pmatrix} 2 & 4 \\ 3 & 2 \end{pmatrix}$, $B=\begin{pmatrix} 1 & 3 \\ -2 & 5 \end{pmatrix}$, $C=\begin{pmatrix} -2 & 5 \\ 3 & 4 \end{pmatrix}$, find 2A-B+2C.

13. If a=10, b=8, c=6, find the value of $sin\ \frac{A}{2} + cos\ \frac{A}{2}$.

14. Write the vertex, focus and equation to the directrix for the parabola $y^2=16x$.

15. Evaluate: $\displaystyle\lim_{x \to a} \frac{\sqrt{x} - \sqrt{a}}{x - a}$

16. Evaluate: $\int x\ \cos 3x\ dx$

17. Solve : $(3x^2+6xy^2)dx + (6x^2y+4y^3)dy=0$.

18. Find the Laplace transform of : t^2+3t+5.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2011

Subject: Remedial Biology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Describe any six modifications of food storing roots with suitable examples.
2. With a neat labeled diagram, explain the urinogenital system of female frog.
3. Define cell. With a neat labeled diagram describe the ultrastructural account of a typical animal cell.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Write a note on medicinal plants of rubiaceae.
5. Describe the aggregate fruits with examples.
6. Draw a neat labeled diagram of a bacterial cell. Mention two useful activities of bacteria.
7. What are conducting tissues of plants? Explain phloem.
8. Write a note on muscular tissue.
9. Enumerate the salient features of mammals.
10. Explain poison apparatus in snakes.
11. Define pollination. Explain the characteristics of entemophilous flowers.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Racemose inflorescence.
13. Bulb.
14. Medicinal uses of shark.
15. Hyaline cartilage.
16. Draw a labeled diagram of a yeast cell.
17. Reflex action.
18. Photosynthesis.

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QP Code: 4001

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2010

Subject: Human Anatomy and Physiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours
Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**
2x15=30 Marks

1.   Enumerate the differences between sympathetic and parasympathetic nervous system. Explain the physiological functions of cholinergic system. (5+10)

2.   With a neat diagram explain the anatomical features of kidney. Write a note on the factors controlling urine formation. (7+8)

3.   Explain the different phases of menstrual cycle. Give the physiological functions of estrogen. (10+5)

II.   **SHORT ESSAY (Answer any SIX questions)**
6x5=30 Marks

4.   Write a note on blood groups.

5.   Give the composition of gastric juice and explain the various phases controlling gastric juice secretion. (1+4)

6.   Write a note on muscular tissue.

7.   With a diagram explain the respiratory centres.

8.   Give the structure and functions of spleen. (2+3)

9.   With a neat labeled diagram explain the internal structure of ear. (2+3)

10.   Give the definitions for the following terms.
   a) Cardiac arrhythmias b) Hypotension   c) Angina
   d) Atherosclerosis   e) Arteriosclerosis

11.   Explain the physiological functions of insulin.

III.   **SHORT ANSWERS (Answer any FIVE questions)**
5x2=10 Marks

12.   Give reasons for prolongation of the bleeding time.

13.   Diagrammatically represent ECG and label the peaks.

14.   Give the composition of bile in gall bladder.

15.   What is meant by cardiac murmur?

16.   Name the hormones secreted by zona glomerulosa and zona recticularis.

17.   List the skeletal muscle disorders.

18.   What changes will happen to the following physiological parameters during exercise?
   a) Heart rate   b) Respiratory rate
   c) Blood pressure d) Body heat production.

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QP Code: 4002

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination-May 2010

Subject: Pharmaceutics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)

2x15=30 Marks

1.   Define prescription. Write the parts and handling of prescription.   (3+5+7)

2.   Define biphasic dosage forms.   Describe the formulation aspects of   (3+12)
     emulsions.

3.   Define suppositories. Write the method of preparation of suppositories.   (3+7+5)
     Mention its advantages.

II.   SHORT ESSAY (Answer any SIX questions)

6x5=30 Marks

4.   Maceration and percolation process.

5.   Sutures and ligatures.

6.   Therapeutic incompatibility with examples.

7.   Enemas and collodions.

8.   Development of Indian Pharmacopoeia.

9.   Formulation aspects of tooth powder and effervescent powders.

10. History of pharmacy profession in India.

11. Displacement value and evaluation of suppositories.

III.   SHORT ANSWERS (Answer any FIVE questions)

5x2=10 Marks

12. Classify different types of dosage forms.

13. Classify powders.

14. Test for type of emulsion.

15. Advantages of insuffalations.

16. Give two examples of nasal drops.

17. Pharmacy as a career.

18. Types of suspensions.

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QP Code: 4003

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2010

Subject: Medicinal Biochemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   Describe the reaction sequences of TCA cycle along with energetic and   (10+3+2)
     its amphibolic nature.

2.   Explain the various factors affecting the enzyme activity.

3.   Explain the *de-novo* synthesis of adenylic acid along with the precursors   (12+3)
     required.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Define oxidative phosphorylation. Explain chemi osmotic hypothesis.

5.   Give the biosynthesis of bile pigments.

6.   Describe ketolysis and give its significance.

7.   Explain oxidative deamination along with its significance.

8.   Define mutation. Explain different types of mutations along with repair
     mechanism.

9.   Compare and contrast competitive and non-competitive enzyme
     inhibition.

10. What is clearance? Explain urea clearance.

11. Give the mitochondrial reactions of β-oxidation of fatty acids.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Biochemical functions of flavin Co-enzyme.

13. Significance of GTT.

14. Define hyperbilirubinemia. Under which condition it occurs?

15. Give the structure and significance of ATP.

16. What is nitrogen balance?

17. What is RIA? Mention its two uses.

18. Role of insulin in regulation of blood glucose level.

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2-0

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2010

Subject: Pharmaceutical Organic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) What are carbocations? Explain the structure, characteristic property   (7+8)
        and types along with their relative stability.
    b) Give account of the reaction, mechanism, reactivity and orientation of
        free radical halogenations of alkanes.

2. Write the methods of preparation and reactions of alkyl halides.   (6+9)

3. Give an account on Baeyer's strain theory, Sachse - Mohr theory and   (5+5+5)
    conformations in cyclohexane.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain geometrical isomerism and assignment of "Z" and "E"
    configuration with suitable examples.

5. What is hydrogen bonding? What are the types of hydrogen bonding?
    Give examples and mention their significance.

6. Explain briefly the mechanism of SN2 reaction and the reactivity of
    various alkyl halides towards SN2 reaction.

7. Explain electrophylic addition reaction in conjugated dienes.

8. Explain mechanism, and limitations of Friedal-Crafts reaction.

9. Write the reactions of aromatic diazonium salts.

10. Write notes on the basicity of amines including the effect of substituent.

11. Explain the qualitative tests for proteins.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Write the structure of 2, 4-pentadiene and ethandioic acid.

13. Define meso compounds.

14. Define protic molecules and give examples.

15. Define peroxide effect.

16. What happens when toluene is treated with mixture of concentrated nitric
    acid and concentrated sulphuric acid?

17. Write the structure of quinoline, imidazole, pyridine and furan.

18. What are essential amino acids? Give two examples.

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2-7

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2010

Subject: Pharmaceutical Inorganic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   **Max. Marks: 70**

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Explain the various steps involved in gravimetric analysis, indicating the importance and precautions to be taken in each step.
2. a) Explain the theory of non-aqueous titrations for weak bases. Mention its advantages and disadvantages.
   b) Explain the principle and procedure for the assay of sodium benzoate.
3. a) Explain the principle and procedure for the limit test for arsenic.
   b) Describe the importance of limit tests.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Define with examples
   a. Normal solution and molar solution   b. Equivalence point
   c. Eq.weight of an oxidizing agent   d. Emetics
   e. Disinfectants

5. Write a note on methods to check the accuracy of an analysis.
6. What is fluorosis? What is the role of fluoride in dental caries?
7. Write a note on Fajans method.
8. Explain the composition and use of ORS.
9. Write the principle and procedure for the assay of copper sulphate.
10. Describe the preparation and assay of ferrous sulphate.
11. What are the uses of radio-isotopes? Explain the storage conditions for radio-isotopes.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

Write the chemical reactions involved in the
12. assay of sodium bicarbonate
13. preparation of iodine from seaweeds
14. assay of aluminium hydroxide gel

Mention the chemical formula, specific medicinal and (or) pharmaceutical uses and storage conditions of:
15. hydrogen peroxide.
16. sodium metabisulphite.
17. carbon dioxide.
18. sodium potassium tartarate.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D. Examination - May 2010

Subject: Remedial Mathematics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   **2x15=30 Marks**

1. a) Show that $\begin{vmatrix} x & y & y \\ y & x & y \\ y & y & x \end{vmatrix} = (x-2y)(x-y)^2$

    b) Derive the equation of the straight line in the form $\frac{x}{a} + \frac{y}{b} = 1$

    c) Find the equation of the circle described on the line joining the points (3, 4) and (1, -2) as a diameter.

2. a) Solve the following system of equations by Matrix method.
       $x+y+2z=9$, $3x+2y+z=10$, $x+2y+3z=14$

    b) Solve the equation $\frac{dy}{dx} = (4x+y+1)^2$

    c) If $x=a(\theta+\sin\theta)$, $y=a(1+\cos\theta)$ find $\frac{d^2y}{dx^2}$

3. a) If $\frac{\cos A}{a} = \frac{\cos B}{b} = \frac{\cos C}{c}$, show that the triangle ABC is equilateral.

    b) Find the Laplace trans form of $\cos t \cos 2t \cos 3t$.

    c) Evaluate: $\int \sin 4x \sin 8x \, dx$

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4. Solve the following system of equations by Crammer's rule.
    $x+y+z=7$, $2x+3y+2x=17$, $4x-9y+z=37$

5. Solve the triangle ABC, given $a=\sqrt{6}+\sqrt{2}$, $b=\sqrt{6}-\sqrt{2}$, $c=60°$

6. Find the equation of the line passing through the point of intersection of the lines $5x+2y-8=0$ and $x-5y-2=0$ and parallel to the line $y=7x+3$

7. If $y=e^{m\cos^{-1}x}$, show that $(1-x^2)y_2 - xy_1 - m^2y = 0$

8. Evaluate: $\int x^2\cos^2 x \, dx$

9. Solve: $(e^y+1)\cos x \, dx - e^y\sin x \, dy = 0$

10. Find $L[fct1]$ where $fct1 = \begin{cases} t, & 0 < t < 4 \\ 5, & t > 4 \end{cases}$

11. Find the inverse of the matrix $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ using Caylay-Hamilton Theorem.

QP Code: 4006

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. If A=$\begin{pmatrix} 2 & 4 \\ 3 & 2 \end{pmatrix}$, B=$\begin{pmatrix} 1 & 3 \\ -2 & 5 \end{pmatrix}$, C=$\begin{pmatrix} -2 & 5 \\ 3 & 4 \end{pmatrix}$, find 2A-B+2C.

13. If in a triangle ABC, $a\sin A = b\sin B$, Show that the triangle is isosceles.

14. Find the value of 'α' if the distance between the points $(\alpha, 2)$ and $(3, 4)$ is $\sqrt{8}$ units.

15. Evaluate: $\lim\limits_{x \to 2} \dfrac{x^{5/2}-2^{5/2}}{x^{3/2}-2^{3/2}}$

16. Evaluate: $\int \dfrac{1}{1+\cos x} dx$

17. Find the order and the degree of the equation $\left(\dfrac{d^2y}{dx^2}\right)^{\frac{3}{2}} + y = x$.

18. Find the Laplace trans form of $(3t+4)3+5^t$.

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QP Code: 4029

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2010

Subject: Remedial Biology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   Explain the process of phytosynthesis.

2.   Give an account of various modifications of root systems.

3.   What are reptiles? How are they classified? Describe the general   (3+6+6)
     characters of reptiles.

II.   **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Define 'seed'. Describe various types of seeds with suitable examples.

5.   Describe the various parts of typical flower with their function.

6.   Explain the functions of leaf.

7.   Write a note on plant growth hormones.

8.   Distinguish between gram positive and gram negative bacteria with
     examples of each.

9.   What is animal tissue? How are animal tissues classified?

10. Write a short note on the structure of heart of frog.

11. Describe the details of snake poisoning treatment.

III.   **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Define 'genus'.

13. Function of roots.

14. Classify fruits.

15. What is 'lamina'

16. Uses of snake venom.

17. Cutaneous respiration.

18. Medicinal importance of pisces.

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2H

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2012

Subject: Human Anatomy & Physiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   2x15=30 Marks

1.   With a neat diagram, explain the anatomical features of human heart. (7+8) Describe the various events of cardiac cycle.

2.   Explain erythropoiesis and factors controlling maturation of erythrocyte. (8+4+3) Briefly state the functions of plasma proteins. Add a note on transport of gases.

3.   Classify adrenal hormones. Give the physiological functions and (4+11) deficiency of glucocorticoids.

II.   SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4.   With a neat diagram, explain the shoulder joint.

5.   Explain the functions and distribution of epithelial tissues.

6.   Write the functions of cerebellum.

7.   Describe the anatomical features of liver and state its functions.

8.   Write a note on basal ganglia.

9.   Describe the factors affecting glomerular filtration rate.

10.   Briefly explain the refractory disorders of the eye.

11.   Write a note on spermatogenesis.

III.   SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12.   Name the thick and thin filaments of skeletal muscles.

13.   Give two important functions of skin.

14.   Write the functions of lymph.

15.   Write the composition of inspired air.

16.   Name the two factors controlling the renin release.

17.   What physiological changes occur in skeletal muscles during exercise?

18.   Name the various mechanisms involved in transport across the cell membrane.

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QP Code: 4002

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2012

Subject: Pharmaceutics

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   2x15=30 Marks

1.   Define suspension. Write the advantages, disadvantages, types and   (2+2+2+3+6)
     formulation of suspension.

2.   Explain the development of professional pharmacy in India in relation to   (7+8)
     education. Write the salient features of latest edition of Indian
     Pharmacopoeia.

3.   Define and explain the prescription, its parts, legal requirement and   (2+6+3+4)
     handling in detail.

II.   SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4.   Write the principle involved in cresol with soap solution and strong
     ammonium acetate solution.

5.   Explain the ideal qualities of a suppository and classify the suppository
     bases with examples.

6.   Enlist various stability problems of an emulsion and explain creaming and
     cracking briefly.

7.   Explain briefly about the reserved percolation.

8.   Describe various types of surgical dressings.

9.   Explain the principle involved in the effervescent granules with an
     example.

10. Explain the factors affecting dose selection.

11. What is therapeutic incompatibility? Give an example.

III.   SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. Write the ideal qualities of an emulsion.

13. Write the difference between a simple and a compound powder.

14. Define vehicles with examples.

15. Define colours with examples.

16. Define displacement value.

17. Write the difference between a suture and a ligature.

18. Define isotonic solutions.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2012

Subject: Medicinal Biochemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.	**LONG ESSAY (Answer any two questions)**	2x15=30 Marks

1. a) Explain the general reactions for the catabolism of aminoacids.
   b) What is hyperbilirubinemia?   (12+3)

2. What is β-oxidation? Explain with reactions, how palmitic acid is catabolized. Write its energetics.   (2+10+3)

3. a) Give an example each for purine and pyrimidine base with structure.
   b) Describe the process of protein synthesis.   (3+12)

II.	**SHORT ESSAY (Answer any six questions)**	6x5=30 Marks

4. Explain how substrate concentration, pH and enzyme concentration affect the rate of enzyme activity.

5. Write the structure, biochemical role and deficiency diseases of the coenzymes derived from the following vitamins.
   a) Pantothenic acid   b) Folic acid.

6. What are ketone bodies? Explain their production and biological significance.

7. What is creatinine? How is creatinine estimation useful in the evaluation of kidney function?

8. Name lipoproteins and write their functions. Why is LDL called as 'bad cholesterol' and HDL called as 'good cholesterol?

9. What is ELISA test? Write its basic principle and applications.

10. What are bile pigments? How do they form in the body? Mention their fate.

11. Describe in detail, how pyruvate is converted to acetyl CoA.

III.	**SHORT ANSWERS (Answer any five questions)**	5x2=10 Marks

12. Write the structure and biological significance of cyclic AMP.
13. Define the terms with example: a) Cofactor   b) Holoenzyme.
14. What is SGOT and SGPT and mention their diagnostic significance.
15. What is ubiquinone in ETC? Mention its role.
16. What are Okazaki fragments in DNA replication?
17. Glucose tolerance test.
18. Mention the normal blood levels of glucose and cholesterol.

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QP Code: 4004

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2012

Subject: Pharmaceutical Organic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   2x15=30 Marks

1.   a) Explain the mechanism of:-
        i) Riemer Tiemann reaction   ii) Perkins reaction.   (4+4)
     b) Define the term aromaticity. Explain the general mechanism of
        electrophilic substitution reaction in benzene.   (2+5)

2.   a) Define and explain Morkonikov's addition reaction.   (2+6)
     b) Define carbocations. Write a note on their stability.   (2+5)

3.   a) What are alkanes? Explain the free radical substitution mechanism of
        chlorination of methane.   (2+5)
     b) Define isomerism. Classify with examples.   (2+6)

II.   SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4.   Explain unimolecular elimination and bimolecular elimination reaction.

5.   Define and give the mechanism for diazotization reaction.   (2+3)

6.   What are heterocyclic compounds? Classify them with examples.   (2+3)

7.   Explain nucleophilic aromatic substitution reaction with examples.

8.   Write a note on conjugated dienes.

9.   Explain the mechanism of SN^2 reaction.

10. Give the different methods for preparation of alicylic compounds.

11. Explain the acidity of carboxylic acids and add a note on effect of
     substituents.

III. SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. Define hydrogen bonding with examples.

13. Giving an example, define polar aprotic solvents.

14. What is meant by free radical? Give an example.

15. Define amino acids. Give examples.

16. Write the structure for the following compounds:
        i) 2-bromopropanoic acid   ii) cis-2-butene.

17. Name any four qualitative tests for carbohydrates.

18. Write the IUPAC names of: i) Ethyl alcohol   ii) Isopropyl alcohol.

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QP Code: 4005

JSS UNIVERSITY, MYSORE
First Year Pharm.D Examination - May 2012
Subject: Pharmaceutical Inorganic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   Describe the principle, reactions and procedure involved in the limit test
     for: a) Iron   b) Arsenic   c) Sulphates.
2.   What is radioactivity? Explain the properties of different types of radiation
     and their use.   Explain the construction and working of any one
     instrument used in measurement of radiation.
3.   Explain in detail the various steps involved in gravimetric analysis and the
     precautions to be taken in each step.

II.   **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   What are dentifrices? Classify them with examples. Write a note on role
     of fluoride in the treatment of dental caries.
5.   Write a note on Fajans method.
6.   Write the principle and procedure for the assay of copper sulphate.
7.   Write the estimation of strong and weak acids with examples.
8.   Explain the theory of redox titrations.
9.   Write the preparation, assay and use of magnesium sulphate.
10. Define and classify errors with examples.
11. Explain the composition and use of ORS.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

     Write the chemical reactions involved in the:
12. Assay of boric acid.
13. Preparation of iodine from sea weeds.
14. Assay of hydrogen peroxide.
     Mention the chemical formula, specific medicinal and (or) Pharmaceutical
     uses and storage conditions of:
15. Sodium metabisulphite.
16. Carbon dioxide.
17. Stannous fluoride.
18. Calcium carbonate.

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JSS UNIVERSITY, MYSORE
First Year Pharm.D. Examination - May 2012
Subject: Remedial Mathematics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) Show that:
$$\begin{vmatrix} 1+a & b & c \\ a & 1+b & c \\ a & b & 1+c \end{vmatrix} = 1+a+b+c$$

b) Differentiate $\cos x$ w.r.t. 'x' from first principle.

c) Write the characteristic of the parabola $y^2 = -16x$.

2. a) Find the equation of a straight line in the form $y - y_1 = m(x - x_1)$ (6+5+4)

b) If the line joining the points (2, 3) and (5, 4) is parallel to the line joining the points (3, k) and (4, 2), find the value of k.

c) Find the condition that the point (x, y) may lie on the line joining the points (3, 4) and (-5, -6).

3. a) Solve the following system of equations by matrix method.
$$3x + 2y + 2z = 10$$
$$x + y + z = 9$$
$$x + 2y + 3z = 14$$

b) Solve: $3e^x \tan y \, dx + (1 - e^x) \sec^2 y \, dy = 0$.

c) Differentiate the following w.r.t. 'x'
$$\cos^{-1}\left[\frac{1 + 2\cos x}{2 + \cos x}\right]$$

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. a) Show that the points (-2, -1), (1, 0), (4, 3) and (1, 2) are the vertices of a parallelogram.

b) Find the equation of the line passing through the points (2, 5) and (-3, 2).   (3+2)

5. Obtain the equation of the parabola in the form $y^2 = 4ax$.

6. Solve the following system of equations by Cramer's rule:
$$5x - y - 4z = 5$$
$$2x + 3y + 5z = 2$$
$$7x - 2y + 6z = 5$$

7. Find the inverse of the matrix $A = \begin{bmatrix} 5 & -2 \\ 3 & 1 \end{bmatrix}$ using Cayley-Hamilton theorem.

8. Solve the triangle ABC, given $a = \sqrt{2}$, $b = 3 - \sqrt{3}$, $c = 2\sqrt{2} - \sqrt{6}$.

9. If $e^x + e^y = e^{x+y}$, show that $\dfrac{dy}{dx} = -e^{(y-x)}$

10. If $x = \dfrac{1-t^2}{1+t^2}$ and $y = \dfrac{2t}{1+t^2}$, show that $\dfrac{dy}{dx} = -\dfrac{x}{y}$

11. If $y = \cos^{-1}x$ show that $(1-x^2)y_2 - xy_1 = 0$.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. In any triangle ABC, show that:
$$2(bc\,\cos A + ca\,\cos B + ab\,\cos C) = a^2 + b^2 + c^2.$$

13. Evaluate: $L\left\{ \bar{e}^t \cos^2 3t \right\}$

14. Find the centre and the radius of the circle
$$2x^2 + 2y^2 - 8x - 12y - 3 = 0$$

15. Evaluate: $\displaystyle\lim_{x \to o} \dfrac{1 - \cos 4x}{x^2}$

16. Evaluate: $\displaystyle\int (4x^2 - 2x + 7)^{3/2}(4x - 1)\,dx$

17. Evaluate: $\displaystyle\int_0^{\pi/2} \dfrac{1}{1 + \sqrt{\cot x}}\,dx.$

18. Solve : $\begin{vmatrix} 1 & -2 & x+3 \\ 1 & x-2 & 3 \\ x+1 & -2 & 3 \end{vmatrix} = 0$

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2012

Subject: Remedial Biology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. Describe the salient features of the families umbelliferae and zingiberaceae. Add a note on the medicinally important plants belonging to these families.
2. Describe the digestive system of frog with neat labeled diagram. Add a note on digestion of food.
3. What is tissue? Describe the structure and functions of simple permanent tissues of plant.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Define root. Explain the functions of root.
5. Write the differences between gymnosperms and angiosperms.
6. Explain the structure and functions of a typical leaf.
7. Define growth. Explain the factors affecting growth.
8. Describe any two poisonous snakes of India.
9. Enumerate the salient features of aves.
10. Describe the structure and functions of mitochondria.
11. Describe the structure and functions of mammalian bone.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Rhizome.
13. Dentition in mammals.
14. Morphological classification of bacteria.
15. Osmosis
16. Larynx.
17. Types of respiration in frog.
18. Maize seed.

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JSS UNIVERSITY, MYSORE

First Year Pharm. D Examination - May 2013

Subject: Pharmaceutics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   2x15=30 Marks

1.   Define suppositories. Write the method of preparation and evaluation of suppositories.
2.   Differentiate flocculated and deflocculated suspensions. Describe the method of preparation of suspensions.
3.   Define percolation and maceration process. Write in detail the process of percolation.

II. SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4.   Differentiate lotions and liniments.
5.   Describe the preparation of surgical cat gut.
6.   Stability problems of emulsions.
7.   Write the preparation of simple powders with example.
8.   Write the formulation of ear drops.
9.   Classify incompatibility with example.
10. Write the development of pharmaceutical industry in India.
11. Give the list of adjuvant for the formulation of monophasic liquid dosage forms.

III. SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. What is meant by displacement value?
13. Advantages and disadvantages of suspensions.
14. Types of suspending agents.
15. Effervescent granules.
16. Dusting powders.
17. What is meant by proof sprit and isotonic solution?
18. Define mouthwash and gargle.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2013

Subject: Medicinal Biochemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   2x15=30 Marks

1. What are enzymes? Write the IUB classification of enzymes. Explain the different types of enzyme inhibitions with suitable examples.   (5+10)

2. What is glycolysis? Explain the reaction involved and energetics of glycolysis under aerobic & anaerobic conditions.

3. Describe the various steps involved in protein synthesis and add a note on inhibitors of protein synthesis.   (12+3)

II. SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4. Explain ketolysis and give its significance.

5. Give the mechanism and significance of transamination.

6. Describe the degradation of cholesterol.

7. Explain the mitochondrial reactions of β oxidation of fatty acids.

8. Describe the biosynthesis of pyrimidine nucleotides.

9. Explain the metabolic disorders associated with the degradation of phenylalanine.

10. Define clearance. Explain creatinine clearance.

11. Enlist various liver functions tests. Describe any one in detail.

III. SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. Give the diagnostic importance of: a) SGOT   b) SGPT.

13. Mention the inhibitors of phosphorylation in ETC.

14. Significance of GTT.

15. Give the significance of HMP shunt.

16. Write about alkaptonuria.

17. Write the structure & biochemical significance of C-AMP.

18. Give the clinical significance of serum cholesterol.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2013

Subject: Pharmaceutical Organic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. Explain the IUPAC system for naming the simple and complex open chain hydrocarbons (alkanes, alkenes and alkynes) with suitable examples.

2. Write the methods of preparation and reactions of alkenes.

3. Give an account on the reaction, mechanism and reactivity of electrophilic aromatic substitution including the effect of substituent on the reactivity and orientation.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Explain tautomerism.

5. Explain conformational isomerism in alkanes.

6. Explain briefly different types of intermolecular force of attraction with examples.

7. Explain Baeyer's strain theory.

8. Write notes on the mechanism, reactivity and orientation of E1 reaction.

9. Write any three nucleophilic addition reactions.

10. Explain Kolbe reaction and Schotten Bauman reaction.

11. Explain any three tests for amino acids.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Why are amines basic in nature?

13. What is the effect of intermolecular force of attraction on boiling point of a compound?

14. Define resonance.

15. Write the name and structure of two five-membered heterocylic ring.

16. Write the diazotization reaction.

17. What are polysaccharides? Give two examples.

18. Why do aryl halides not readily undergo nucleophilic substitution reaction?

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - May 2013

Subject: Pharmaceutical Inorganic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain the principles involved in iodometry, iodimetry and titrations with potassium iodate with one example each.
2. Explain the types of precipitation titrations.
3. What are the functions of major physiological ions?   Explain the electrolytes used in replacement therapy. Write the preparation and assay of calcium gluconate.   (3+3+9)

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Write a note on pharmaceutical applications of radioactive substances.
5. What are primary standards? Give examples. What are the properties of an ideal primary standard?
6. Write in detail on: a) Antidotes   b) G M Counter.
7. Give the preparation, assay principle and uses of boric acid.
8. Write the estimation of strong and weak bases with examples.
9. Write the preparation and standardization of potassium permanganate.
10. Describe the estimation of barium sulphate by gravimetric method.
11. Write the storage conditions and medicinal uses of oxygen, nitrous oxide and carbon dioxide.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks
     Write the chemical reactions involved in the:

12. Assay of aluminium hydroxide gel.
13. Assay of chlorinated lime.
14. Assay of sodium bicarbonate.

    Mention the chemical formula, specific medicinal and (or) pharmaceutical uses and storage conditions of:

15. Sodium potassium tartarate.
16. Hydrogen peroxide.
17. Magnesium hydroxide mixture.
18. Bentonite.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D. Examination - May 2013

Subject: Remedial Mathematics

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.
   a) Find the inverse of the matrix: $\begin{bmatrix} 3 & -2 & 4 \\ 5 & 3 & -2 \\ 1 & 1 & 1 \end{bmatrix}$

   b) Derive the equation of the straight line in the form $y = mx + c$

   c) Find the equation of the circle two of whose diameters are $2x + y - 5 = 0$
   and $x + 2y - 7 = 0$ and passing through the point $(1, -3)$.

2. a) Solve the following system of equation by Crammer's rule
   $x - y + 2z = 3,\ 2x + y + z = 5,\ 4x - y - 2z = 11$

   b) Solve: $(x^2 - 4xy - 2y^2 = 3)dx + (y^2 - 4xy - 2x^2)dy = 0$

   c) If $y = cos^{-1}x$, show that $(1 - x^2)y_2 - xy_1 = 0$

3. a) Evaluate: $\int \frac{x-1}{(x-2)(x-3)}\, dx$.

   b) Solve the triangle ABC, given $a = 2,\ b = \sqrt{6}, + \sqrt{2},\ c = 2$.

   c) Find $L(t^n)$, when n is a +ve integer.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Solve the following system of equations by matrix method.
   $x - y + 2z = 3;\ 2x + y + z = 5;\ 4x - y - 2z = 1$

5. In any triangle ABC, prove that: $a = b\cos C + c\cos B$ with usual notations.

6. Find the acute angle between the lines $9x + 3y - 5 = 0$ and $2x + 4y + 3 = 0$

7. Differentiate the following w.r.t. 'x'
   $(\sin x)^{\log x} + (\log x)^{\sin x}$

8. Evaluate: $\int (4x^2 - 2x + 7)^{3/2} (4x - 1)\, dx$.

9. Solve: $x \log x \frac{dy}{dx} + y = \log x^2$

10. Find: $L\left\{ f(t) \right\}$ if $f(t) = \begin{cases} \sin 2t, & 0 < t < \pi \\ 0, & t > \pi \end{cases}$

11. Verify Coley-Hamilton theorem for the matrix $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Find the slope of line joining the points A (-4, 5) and B (-2, -1)

13. If in a triangle ABC, a $\sin A$ = b $\sin B$, show that the triangle is isosceles.

14. Evaluate: $\displaystyle \lim_{x \to 2} \frac{3x^2 - 4x + 1}{2x^2 + 4x - 1}$

15. Integrate $4 \sec 4x \tan 4x + \cos 2x$ w.r.t 'x'.

16. Determine the order and degree of differential equation $\frac{d^2y}{dx^2} + \left(\frac{dy}{dx}\right)^2 + xy = 0$

17. Find the Laplace Transform of $\sin 5t \cos 2t$

18. If $A = \begin{pmatrix} 3 & -1 & 2 \\ 3 & 1 & 2 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & 4 & 6 \\ 1 & 3 & -1 \end{pmatrix}$, find $2A - 3B$.

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Supplementary Exam

QP Code: 4003

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination November 2010

Subject: Medicinal Biochemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. Describe the oxidative and non oxidative phase of HMP shunt along with   (12+3)
    its significance.
2. Explain the formation and utilization of ketone bodies. Describe   (12+3)
    ketoacidosis.
3. Explain the denovo biosynthesis of fatty acids.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Define oxidative and substrate level phosphorylation with suitable
    example.
5. Give the biosynthesis of bile pigments.
6. Describe the reactions of urea cycle.
7. Explain the structure and significance of t-RNA.
8. Define mutation. Explain different types of mutations along with repair
    mechanism.
9. Compare and contrast competitive and non competitive enzyme
    inhibition.
10. What is clearance value? Explain urea clearance value.
11. Explain glycogenolysis.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Give the biochemical functions of nicotinamide co-enzymes.
13. What is alkaptanuria?
14. What is atherosclerosis?
15. Give the structure and significance of cyclic AMP.
16. Write about inhibitors of ETC.
17. What is RIA? Mention its two uses.
18. Write the role of carnitine in β-oxidation of fatty acids.

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QP Code: 4006

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - November 2010

Subject: Remedial Mathematics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**

2x15=30 Marks

1. a) Show that $\begin{vmatrix} 1 & 1 & 1 \\ a & b & c \\ a^3 & b^3 & c^3 \end{vmatrix} = (a\text{-}b)\,(b\text{-}c)\,(c\text{-}a)\,(a\text{+}b\text{+}c).$

   b) Prove that $\displaystyle\lim_{x \to a} \frac{x^n - a^n}{x - a} = na^{n-1}$, when n is any rational number.

   c) Obtain the standard equation of the parabola in the form $y^2 = 4ax$.

2. a) In any triangle ABC, prove that $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C} = 2R$, where R is the circumradius of the triangle ABC.

   b) Find the equation of the line perpendicular to $5x+2y=8$ and passing through the mid-point of the line joining the points $(2, 3)$ and $(4, 5)$.

   c) Find $\dfrac{dy}{dx}$ if, $x=a(\theta - \sin\theta)$, $y=a(1+\cos\theta)$ at $\theta = \dfrac{\pi}{2}$.

3. a) Solve: $(1+2xy\cos x^2 - 2xy)dx + (\sin x^2 - x^2)dy = 0.$

   b) Find the inverse of the matrix: $\begin{bmatrix} 2 & -1 & 3 \\ -1 & 4 & 2 \\ 0 & -3 & 1 \end{bmatrix}$

   c) Find the acute angle between the lines $3x+y+7=0$ and $x=2y+9=0$.

II. **SHORT ESSAY (Answer any SIX questions)**

6x5=30 Marks

4. Solve the following system of equations by matrix methods
   $x+y+z=7$, $2x+3y+2z=17$, $4x+9y+z=37$.

5. Solve the triangle ABC, given $a=\sqrt{6} + \sqrt{2}$, $b=2\sqrt{2}$, $C=60°$.

6. Find the centre and radius of the circle $2x^2+2y^2+6x-10y+9=0$.

7. Differentiate the following w.r.t. 'x', $(\cos^{-1}x)^{\log x} + (\tan x)^{\sec x}$

8. Evaluate: i) $\int x^2 \sin 3x \, dx$ ii) $\int \log x \, dx$

9. Solve: $y(\log y)dx + (x-\log y)dy = 0.$

10. If $f(t) = \begin{cases} 2, & 0 < t < 3 \\ t, & t > 3 \end{cases}$ Find $L\{f(t)\}$

11. Evaluate: a) $\displaystyle\lim_{x \to 0} \frac{\sin 3x \cdot \tan 4x}{x^2}$ b) $\displaystyle\lim_{x \to 2} \frac{x^2 - 4}{\sqrt{2x - 3} - \sqrt{x - 1}}$

PTO

III. **SHORT ANSWERS (Answer any FIVE questions)** **5x2=10 Marks**

12. Solve: $2x+3y-1 = 0$, $3x-y+2 = 0$ by Cramer's rule.

13. If $a=3$, $b=4$, $c=5$, find $\sin \dfrac{C}{2}$.

14. Find the equation of the line passing through the point (-2, 3) with slope $\dfrac{1}{2}$.

15. Differentiate the following w.r.t. 'x', $\dfrac{1+\tan x}{1-\tan x}$.

16. Evaluate: $\int \dfrac{(\tan^{-1} x)^3}{1+x^2} dx$.

17. Solve: $\sec^2 x \tan y\, dx + \sec^2 y \tan x\, dy = 0$.

18. Find: $L\{\sin 2t \sin 3t\}$.

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QP Code: 4009

JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination November 2010

Subject: Pharmacognosy & Phytopharmaceuticals

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1.   What are natural pesticides? Classify them with examples. Write botanical source, chemical constituents and mechanism of action of pyrethrum as pesticides.

2.   Define pharmacognosy. Writ its scope and objective.

3.   Describe the classification of crude drugs with examples.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4.   Write the cultivation of cardamom.

5.   Write the pharmacognosy of opium.

6.   Write the biological source, chemical constituents and uses of rauwolfia.

7.   Give botanical source, chemical constituents and uses of acacia.

8.   Explain the life cycle of ergot.

9.   Write a note on propagation and collection of cinchona.

10. Describe the morphological and microscopic characters of senna with diagram.

11. Write a note on gelatin.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Cell inclusions.

13. Difference between anomocytic and anisocytic stomata.

14. Source and uses of spermaceti.

15. Cremocarp fruits.

16. Fiehe's test.

17. Difference between substitution and adulteration.

18. Biological source, chemical constituents and uses of liquorice.

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QP Code: 4010

JSS UNIVERSITY, MYSORE
Second Year Pharm.D Examination November 2010
Subject: Pharmacology-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1.   What are anti cholinergic drugs? Classify them with examples. Explain the pharmacological actions, therapeutic uses and adverse effects of atropine.

2.   Classify anti hypertensive drugs. State the mechanism of actions, therapeutic uses and side effects of drugs acting at angiotensin receptors.

3.   List the marketed insulin preparations. Explain the mechanism of actions and adverse effects of insulin. Add a note on insulin analogues.

II.   **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4.   Write a note on sub acute toxicity.

5.   With suitable example explain the first pass metabolism.

6.   What are SSRI? Give example and state its therapeutic uses.

7.   Explain the mechanism of actions and therapeutic uses of lignocaine.

8.   Write a note on M_2 antagonists.

9.   Write a note on antitussives.

10.   What are non sedative anti histamines? Give examples. Write their therapeutic uses and side effects.

11.   Explain the mechanism of action and therapeutic uses of clopidogrel.

III.   **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12.   Write the therapeutic uses and category of tropicamide.

13.   Give two examples for synergistic drug-drug interactions.

14.   State the mechanism of action of carvedilol.

15.   Write the adverse effects of fentanyl.

16.   Classify oral hypoglycaemic agents with suitable examples.

17.   Give the adverse effects of butesonide.

18.   What is kitanserin?

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16

QP Code: 4001

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - November 2012

Subject: Human Anatomy & Physiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. a) Explain the mechanism of intrinsic and extrinsic pathways of coagulation.
    b) Write the factors which prolong the clotting time.
    c) Write a note on tissue plasminogen activator.   (5+5+5)

2. a) What is pulmonary ventilation?
    b) With a neat diagram describe the anatomy of lungs.
    c) Explain the regulation of respiration.   (3+6+6)

3. a) What are hormones? Classify pituitary hormones.
    b) Explain the physiological functions, regulation and deficiency of growth hormone.   (5+10)

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Describe different transport mechanisms across the cell membrane.
5. What is lymph? Give its composition and functions.
6. Draw the structure of an artery and label its parts.
7. With a neat diagram explain various events of human electrocardiogram.
8. Give the composition and functions of saliva.
9. Enumerate the cranial nerves. Give its functions.
10. Draw the structure of skin and write its important functions.
11. Explain the physiology of muscle contraction.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. What are secondary messengers? Give two examples.
13. How is lung function regulated during exercise?
14. Define a) Asphyxia   b) Hypoxia
15. What is meant by neurotransmitters? Give examples.
16. Name the nerves of micturition reflex.
17. List four contraceptive methods in female.
18. Write the possible movements of shoulder joint.

*****

17

QP Code: 4003

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - November 2012

Subject: Medicinal Biochemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. With the help of reaction sequences explain the denovo biosynthesis of   (10+5)
    fatty acids and add a note on the enzyme system involved.

2. a) Explain the various steps involved in the semi conservative replication   (12+3)
       of DNA.
    b) Write the biochemical significance of DNA replication.

3. a) Explain the formation & elimination of ammonia in human beings.   (12+3)
    b) What are the deficiency diseases of urea cycle?

II.   SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Give the nomenclature and IUB classification of enzymes.
5. Give the biochemical role of co-enzyme derived from vitamin-B1 and give
    the deficiency symptoms.
6. Describe the conversion of pyruvate to acetyl co-A.
7. Define and classify high energy compounds with example. .
8. Define clearance and explain urea clearance.
9. Enlist various liver function tests and explain Vandenbergh test.
10. Describe the salient features of genetic code.
11. Explain ketogenesis. Under which condition ketogenesis predominates?

III.   SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Give the diagnostic importance of transaminases.
13. Give the significance of gluconeogenesis.
14. Give the energetic of glycolysis under aerobic and anaerobic conditions.
15. Give the structure and significance of C-AMP.
16. Justify the amphibolic nature of TCA cycle.
17. What is ELISA?
18. Give the clinical significance of serum cholesterol.

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18

QP Code: 4004

JSS UNIVERSITY, MYSORE

First Year Pharm. D Examination - November 2012

Subject: Pharmaceutical Organic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours
Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)
2x15=30 Marks

1.   Give a comparative account on the reaction, mechanism, kinetics, reactivity, solvent effect and stereochemistry of SN1 and SN2 reaction.

2.   Write the methods of preparation and reactions of amines.

3.   Give an account on the evidence for the structure of benzene and explain aromatic character and Huckel's rule.

II. SHORT ESSAY (Answer any SIX questions)
6x5=30 Marks

4.   Explain the IUPAC rules for the nomenclature of carboxylic acids with examples.

5.   Explain optical isomerism with examples.

6.   What are free radicals? Add a note on the structure of free radicals and the types of free radicals along with their relative stability.

7.   Explain Morkovnikov's rule.

8.   Explain the synthetic methods for cyclo alkanes.

9.   Explain aldol condensation and crossed aldol condensation.

10. Write notes on the acidity of phenol including effect of substitution.

11. Give a brief account on the identification tests for sugars.

III. SHORT ANSWERS (Answer any FIVE questions)
5x2=10 Marks

12. Write the structure of different conformations of butane.

13. Define racemic mixture.

14. What are polar molecules? Give examples.

15. Write the structure of ethanal and 2-heptanone.

16. Write the structure of thiopene, pyrazole, pyrimidine and thiazole.

17. How is benzene converted to meta nitro toluene?

18. Explain biuret test.

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19

QP Code: 4006

JSS UNIVERSITY, MYSORE
First Year Pharm.D. Examination - November 2012
Subject: Remedial Mathematics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**

2x15=30 Marks

1.   Solve the following by Cramer's rule:

$$5y + 2x + z = -1$$
$$x + 7y - 6z = -18$$
$$3y + 6z = 9$$

b) Obtain the equation of the straight line in the form: $y - y_1 = m(x - x_1)$

c) Find $\frac{d^2 y}{dx^2}$ when $x = a\ (\theta + sin\theta)$ and $y = a(1 + cos\theta)$.

2.   a) solve: $\frac{dy}{dx} - \frac{2y}{x+1} = (x+1)^3$

b) Solve the triangle ABC, given $a = 2,\ c = \sqrt{3} - 1,\ B = 120°$

c) Verify Cayley – Hamilton theorem for the matrix $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$

3.   a) If the line joining the points (3, 2) and (2, -3) is parallel to the line joining the points (4, 3) and (2, k), find k.

b) Differentiate w.r.t. 'x', $x^x + (tanx)^{secx}$

c) Evaluate: $\displaystyle\lim_{x \to o} \frac{\sqrt{2 + x} - \sqrt{2 - x}}{2x}$

II. **SHORT ESSAY (Answer any SIX questions)**

6x5=30 Marks

4.   Solve the following system of equation by Matrix method x-y-2z=3, 2x+y+z=5, 4x-y-2z=11.

5.   In any triangle ABC, prove that: $a^2 = b^2 + c^2 - 2bc\ cosA$

6.   Find the equation of a line passing through (3, -2) and inclined at an angle of 60° with the line $\sqrt{3}x + y = 1$.

7.   Find $\frac{d^2 y}{dx^2}$ when $\begin{array}{l} x = a(cos\theta + \theta sin\theta) \\ y = a(sin\theta + \theta cos\theta) \end{array}$

8.   Evaluate: $\displaystyle\int_0^{\pi/2} \frac{1}{1+ \sqrt{cotx}}\ dx.$

9.   Solve: $\left(xtan\frac{y}{x} - ysec^2\frac{y}{x}\right) dx + x\ sec^2\frac{y}{x}\ dy = 0.$

10. Find the Laplace transformation of t^n, when n is positive integer.

11. Obtain the standard equation of parabola in the form: $y^2 = 4ax.$

PTO

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Find the inverse of the matrix $A = \begin{bmatrix} 2 & -1 \\ 3 & -2 \end{bmatrix}$

13. If in a triangle ABC, a sinA = b sinB, show that the triangle is isosceles.

14. Find the equation of the circle with centre at (2, 3) and radius is 4.

15. Evaluate: $\lim\limits_{\theta \to 0} \dfrac{1 - \cos\theta}{\theta^2}$

16. Evaluate: $\int x^2 . e^{3x}\, dx$

17. Solve: $\dfrac{dy}{dx} = 3x^2 + 2$

18. Find the Laplace transform of cos4t cos2t.

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QP Code: 4029

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - November 2012

Subject: Remedial Biology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions) — 2x15=30 Marks

1. Describe the general characteristics of aves.
2. Define antibiotics. Classify penicillins. Describe the various methods of preparation of penicillins. (2+3+10)
3. Give a brief account of the process of transpiration in plants. Describe the various factors that affect the rate of transpiration.

II. SHORT ESSAY (Answer any SIX questions) — 6x5=30 Marks

4. Define placentation and explain its types with examples.
5. Differentiate phyllode and phylloclade.
6. Write a note on conducting tissues.
7. Draw a neat labeled diagram on the structure of a typical animal cell.
8. Write a short note on yeast.
9. Describe Kreb's cycle.
10. What is scorpion? How is the scorpion sting to be treated?
11. What are the differences between hypogynous flower, perigynous flower and epigynous flower?

III. SHORT ANSWERS (Answer any FIVE questions) — 5x2=10 Marks

12. Define stipule.
13. Functions of epithelial tissue.
14. Classify enzymes.
15. What is false fruit?
16. How is the class mammals classified?
17. What is endosperm?
18. Define staining and mention the different types of staining.

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JSS UNIVERSITY, MYSORE

First Year Pharm. D Examination - November 2013

Subject: Pharmaceutics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any two questions)   2x15=30 Marks

1. Define suppositories. Write the method of preparation and evaluation of suppositories.
2. Differentiate flocculated and deflocculated suspensions. Describe the methods of preparation of suspensions.
3. Define percolation and maceration process. Write in detail the process of percolation.

II. SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4. Differentiate lotions and liniments.
5. Describe the preparation of surgical catgut.
6. Stability problems of emulsions.
7. Write the preparation of simple powders with example.
8. Write the formulation of ear drops.
9. Classify incompatibility with example.
10. Write the development of pharmaceutical industry in India.
11. List the adjuvants for the formulation of monophasic liquid dosage forms.

III. SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. What is meant by displacement value?
13. Advantages and disadvantages of suspensions.
14. Types of suspending agents.
15. Effervescent granules.
16. Dusting powders.
17. What is meant by proof sprit and isotonic solution?
18. Define mouthwash and gargle.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - November 2013

Subject: Medicinal Biochemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   **Max. Marks: 70**

I.	**LONG ESSAY (Answer any two questions)**	**2x15=30 Marks**

1. What are enzymes? How do they act? Describe the factors which affect (2+1+12) the rate of enzyme activity.

2. What is β-oxidation? Explain the β-oxidation process of fatty acids with (2+13) odd number of carbon atoms.

3. Describe how the normal blood glucose level is maintained. Describe the (7+8) formation of glycogen in the liver.

II.	**SHORT ESSAY (Answer any six questions)**	**6x5=30 Marks**

4. Write a note on de novo biosynthesis of pyrimidine nucleotides.

5. How do you convert pyruvate into acetyl-CoA?

6. What are lipoproteins? Mention the types and describe their functions.

7. Explain the diseases caused by the abnormal catabolism of aromatic amino acids.

8. Distinguish between creatine and creatinine. Give their formation and importance.

9. Define genetic code. Give its salient features.

10. What is ELISA? Give its applications.

11. Write a note on liver function tests.

III.	**SHORT ANSWERS (Answer any five questions)**	**5x2=10 Marks**

12. Name the enzyme complexes of ETC.

13. What is the difference between nucleotide and nucleoside? Give an example for each.

14. Write a note on glucose tolerance test.

15. Write the difference between active and passive transport.

16. What are sphingolipids? Mention their role in human body.

17. Give the normal level and functions of sodium as electrolyte.

18. What is renal clearance? Give its importance.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - November 2013

Subject: Pharmaceutical Organic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. a) Compare aliphatic nucleophilic bimolecular and unimolecular reaction.   (7)
    b) Why are aromatic amines less basic than aliphatic amines? Write the effect of substituents on basicity of amines.   (4+4)

2. a) Explain the theory of orientation of monosubstituted benzene compounds towards aromatic electrophilic substitution reactions.   (8)
    b) Define diazotization reaction. Explain the mechanism with example.   (2+5)

3. a) Define elimination reaction. Explain E1 & E2 mechanism of dehydrohalogenation of alkyl halide.   (2+3+3)
    b) Classify dienes. Write the mechanism of 1, 2 &1, 4 addition reaction of conjugated dienes.   (2+5)

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Define polarity of molecules and intermolecular forces with examples.

5. General methods for preparation of cyclo alkanes.

6. Give the reactions of carboxylic acids.

7. Mechanism of Riemer Tiemann reaction.

8. Write a note on aromaticity of benzene.

9. What are the applications of diazonium salts?

10. How will you differentiate aldehydes from ketones?

11. Explain the mechanism involved in the free radical addition reaction of alkenes.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. C=0 is highly polar in nature whereas carbon dioxide is non polar. Why?

13. Give the structure for 5-bromo-4-methyl-hex-3-en-2-one.

14. Give the IUPAC name for $HO-CH_2-CH_2-COOH$.

15. Define carbocation and carbanion.

16. Test for sulfur containing amino acid.

17. What are nucleophiles and electrophiles?

18. What are alkyl halides?

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JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - November 2013

Subject: Pharmaceutical Inorganic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   Define accuracy and precision. Describe the types of errors and methods of minimizing errors.
2.   Classify solvents used in non-aqueous titrations and explain the estimations of sodium benzoate and ephedrine hydrochloride.
3.   Describe the principle and procedure involved in the assay of
     a) Ferrous sulphate   b) Copper sulphate   c) Ammonium chloride.

II.   **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   What are antimicrobials? Give their mode of action. Write the preparation, assay and uses of boric acid.
5.   Describe the various electrolytes used in replacement therapy.
6.   Write a note on metal ion indicators.
7.   Describe the assay of hydrogen peroxide and chlorinated lime.
8.   Write a note on physiological acidbase balance.
9.   Write the preparation and standardization of iodine.
10. Write a note on combination antacid preparations.
11. Define the following with examples:
     a) Equivalent weight of an oxidizing agent.
     b) Disinfectants.   c) Nernst equation.   d) Emetics.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

     Write the chemical reactions involved in the:-
12. Assay of potassium iodide.
13. Assay of calcium gluconate.
14. Assay of potassium permanganate.

     Mention the chemical formula, specific medicinal and (or) pharmaceutical uses and storage conditions of:-
15. Aluminum hydroxide gel.
16. Iodine.
17. Light magnesium carbonate.
18. Sodium thiosulphate.

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JSS UNIVERSITY, MYSORE

First Year Pharm.D. Examination - November 2013

Subject: Remedial Mathematics

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30
                                                                                                Marks

1. a) Show that : $\begin{vmatrix} a\text{-}b\text{-}c & 2a & 2a \\ 2b & b\text{-}c\text{-}a & 2b \\ 2c & 2c & c\text{-}a\text{-}b \end{vmatrix} = (a+b+c)^3$

   b) Derive the equation of the straight line in the form $y - y_1 = m(x - x_1)$

   c) The lines $2x - 3y = 5$ and $3x - 4y = 7$ are the diameters of a circle of area 154 sq units. Find the equation of the circle.

2. a) Find the inverse of the matrix: $\begin{bmatrix} 3 & -1 & 2 \\ 2 & 1 & -1 \\ 1 & 3 & -5 \end{bmatrix}$

   b) Solve : $(y^2 - 2xy)\,dx = (x^2 - 2xy)\,dy$

   c) If $y = (cos^{-1}x)^2$ show that $(1 - x^2)y_2 - xy_1 - 2 = 0$

3. a) In any triangle ABC, prove that $\frac{a}{SinA} = \frac{b}{SinB} = \frac{c}{SinC} = 2R$, where R is the circum radius of the triangle ABC.

   b) Find: $L\,[f(t)]$ if $f(t) = \begin{cases} 0,\ 0 < t < 1 \\ t,\ 1 < t < 2 \\ 0,\ t > 2 \end{cases}$

   c) Evaluate: $\int x^2 \tan^{-1}x\,dx$.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Solve the following system by matrix method.
   $3x - y + 2z = 13;\ 2x + y - z = 3;\ x + 3y - 5z = -8.$

5. In any triangle ABC, prove that $\tan\left(\frac{B-C}{2}\right) = \frac{b-c}{b+c}\,cot\,\frac{A}{2}$

6. If the acute angle between the lines $4x - y + 7 = 0$ and $Kx - 5y - 9 = 0$ is $45°$, find K.

7. If $x = a\,(cost + \log \tan \frac{t}{2}),\ y = a\,sint$, show that $\frac{dy}{dx} = tant$.

8. Evaluate: $\int \frac{dx}{1+cotx}$.

9. Solve $3e^x tany\,dx + (1 - e^x)sec^2y\,dy = 0$.

10. Find the Laplace Transform of $sin5t \cdot cos2t$.

11. Verify Cayley-Hamilton theorem for the matrix $\begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. If $A = \begin{pmatrix} -2 & 1 \\ 0 & 3 \end{pmatrix}$, find $2A^2 - 3A - 7I$.

13. If in a triangle ABC, $a = \sqrt{2}$, $b = 2$, $c = \sqrt{3} + 1$, find B.

14. Find the distance between the points (2, 3) and (1, 3).

15. Evaluate: $\lim\limits_{x \to 3} \dfrac{x^4 - 81}{x - 3}$

16. Evaluate : $\displaystyle\int \dfrac{x^3 - 4x^2 + 3x - 1}{\sqrt{x}} \, dx.$

17. Find the order and the degree of the differential equation:
$1 + \left(\dfrac{dy}{dx}\right)^2 = 7\left(\dfrac{d^2 y}{dx^2}\right)^3.$

18. Find Laplace Transform $e^{-2t} \sin h\, 4t$.

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QP Code: 4003

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - October 2011

Subject: Medicinal Biochemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain the replication of DNA in detail and add a note on its (12+3) significance.
2. How are fatty acids activated, enter into mitochondria and get (12+3) oxidized? Add a note on energetic of β-oxidation.
3. Describe the reaction sequences, significance and energetics of (10+2+3) glycolysis.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain the conversion of cholesterol into bile salts.
5. Give the mechanism and significance of transamination.
6. Describe the structure of t-RNA and give its biological significance.
7. Explain the oral glucose tolerance test and its significance.
8. Describe the biosynthesis of pyrimidine nucleotides.
9. Explain the metabolic disorders associated with the degradation of phenylalanine.
10. Define the clearance value. Explain creatinine clearance value.
11. Enlist various liver functions tests. Describe Vandenberg's test.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Give the diagnostic importance of LDH & creatine phosphokinase.
13. Mention the inhibitors of ~~phospherylation in~~ ETC.
14. Define & give the structure of any two essential amino acids.
15. Give the significance of TCA cycle.
16. Write the conversion of ribonucleotides into deoxy ribonucleotides.
17. Write the structure & biochemical significance of C-AMP.
18. Give the structure of any two primary bile acids.

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JSS UNIVERSITY, MYSORE
First Year Pharm.D Examination - October 2011
Subject: Pharmaceutical Organic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   **2x15=30 Marks**

1. a) What are proteins? How are they classified? Write a note on colour   (2+3+3)
       reactions of proteins.
    b) What are nucleophilic addition reactions? Explain the mechanism of   (2+5)
       Cannizzaro reaction.

2. a) Define Saytzeff rule. Give the mechanism of dehydrohalogenation of   (2+6)
       alkylhalide.
    b) What are cycloalkanes?   Describe the different methods of   (2+5)
       preparation.

3. a) Define the term aromaticity. Write a note on *ortho, para* and *meta*   (2+6)
       directing effect of substituents on benzene ring.
    b) What are alkanes? Write a note on halogenation of alkanes.   (2+5)

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4. Explain Lowry Bronsted theory for acids and bases.
5. What are structural isomers?   Write a brief note on geometrical   (2+3)
    isomerism.
6. Explain why phenol is more acidic than ethyl alcohol.
7. Give one method for conversion of carboxylic acids into ester, acid
    chloride and acid anhydride.
8. Enumerate the factors affecting SN_1 And SN_2 reactions.
9. Why does benzene undergo electrophilic substitution reaction, whereas
    alkenes undergo addition reaction? Explain.
10. Give the mechanism for addition of hydrogen bromide on 1.3-butadiene.
11. Why amines are basic in nature? Explain the effect of substituents on   (2+3)
    their basicity.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Which is having higher boiling point: ethanol or dimethyl ether? Why?
13. Write the structure of a) 2, 2-dimethyl-1-propanol   b) Isopropylamine.
14. Write the structure and medicinal uses of Isoniazid.
15. What is Diels - Alder reaction? Give one example.
16. Write the IUPAC name of   a) Formic acid   b) Acetaldehyde.
17. Outline the conversion of benzaldehyde to cinnamic acid.
18. Explain any one test to distinguish reducing and non reducing sugars.

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QP Code: 4005

JSS UNIVERSITY, MYSORE

First Year Pharm.D Examination - October 2011

Subject: Pharmaceutical Inorganic Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) Mention with suitable examples, various types of impurities in   (8+7)
    pharmaceutical substances.
    b) Explain with the help of a suitable diagram the principle and procedure
    involved in the limit test for arsenic.

2. Give the method of preparation, assay and medicinal uses of the (5+5+5)
    following compounds.
    a) Potassium permanganate.
    b) Boric acid.
    c) Hydrogen peroxide.

3. a) What is acid neutralizing capacity of an antacid? How is it tested for   (10+5)
    aluminum hydroxide?
    b) Outline the principle involved in assay of ferrous sulphate.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain a method of preparation and assay of ammonium chloride.

5. Write the principle and procedure involved in the limit test for iron.

6. Write the procedure and principle involved in the standardization of
    perchloric acid.

7. How do you estimate barium sulpate by gravimetric method?

8. Give a brief account of chemistry, properties and applications of
    bentonite.

9. What are the precautions and storage conditions to be taken in the
    handling of radioactive materials?

10. What are anitcaries agents? What is the role of fluoride as an anticaries
    agent?

11. Outline the preparation, principle of assay and uses of magnesium
    sulfate.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Explain why citric acid is added in the limit test for iron.

13. What is the purpose of cotton wool dipped in lead acetate solution in the
    limit test for arsenic?

14. Write the identification tests for boric acid.

15. Give composition and method of preparation of aqueous iodine solution.

16. Explain the use of potassium thio cyanate towards the end of the assay
    of copper sulphate.

17. Define the terms precision and accuracy.

18. Why is assay of ferrous sulphate carried out in strongly acidic conditions?
    Explain.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2013

Subject: Pathophysiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1.   Explain the role of different type of mediators involved in inflammation.

2.   Describe the mechanism involved in hypersensitivity.

3.   Explain the biological effect of radiation.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4.   Explain the pathophysiology of acute renal failure.

5.   Write a note on classification of diabetes mellitus.

6.   Briefly describe pathophysiology of tuberculosis.

7.   Explain the signs, symptoms and pathology of pneumonia.

8.   Write a note on cirrhosis.

9.   Explain the aetiology and pathogenesis of inflammatory bowel disease.

10. Describe aetiology and hazards of obesity.

11. Write the difference between benign and malignant tumors.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. What is amylodosis?

13. Write short note on hypoglycemia and hyperglycemia.

14. What are the complications involved in peptic ulcers?

15. List the major functions vitamins.

16. Write the pathogenesis of whooping cough.

17. Write the causative factors of jaundice.

18. Write short note on uraemic syndrome.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2013

Subject: Pharmaceutical Microbiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. Explain the different methods of bacteriostatic and bactericidal evaluation of disinfectants.
2. Write the principles and procedures involved in microbial assay of streptomycin using Bacillus subtilis.
3. Describe the various nutrient requirement for cultivation of bacteria.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. List the differences between eukaryotic and prokaryotic cells.
5. Write the causative agents, mode of transmission and treatment of hepatitis.
6. Explain the chemistry of immunoglobulins.
7. Write the difference between exotoxins and endotoxins.
8. Write the mode of action and factors affecting radiation sterilization.
9. Write the principles and procedures involved in indole production test.
10. Write in detail about standardization of bacterial vaccines.
11. Write a note on sterilization indicators.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Ultra structure of bacterial cell wall.
13. Acid fast staining.
14. Merits and demerits of membrane filters.
15. Koch's postulates.
16. Spirochetes.
17. Industrial uses of yeast.
18. T and B cells.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2013

Subject: Pharmacognosy & Phytopharmaceuticals

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. Explain the pharmacognosy of opium.

2. Explain the methods of adulteration and detection of adulterated crude drugs.

3. Define essential oils. Explain the methods of isolation of essential oils with confirmatory tests.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Write the cultivation and collection of cardamom.

5. Give a note on cell inclusions with examples.

6. Explain the morphology and microscopy of fennel.

7. Write the preparation & chemical constituents of shark liver oil & wool fat.

8. Classify glycosides with its chemical tests.

9. Factors affecting cultivation of crude drugs.

10. Methods of analysis of lipids.

11. Give a note on herbal drug interaction.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Chaulmoogra oil

13. Morphology of liquorice.

14. Sodium alginate.

15. Source and uses of agar.

16. Podophyllum.

17. Poisonous plants.

18. Differentiate raw cotton and absorbent cotton.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2013

Subject: Pharmacology-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1.   Classify antiepileptic drugs based on chemical structure. Describe their mechanism of actions. Why is ethosuximide used in absence (petit mal) seizures?

2.   Classify antianginal drugs with examples. Explain the cellular mechanisms of action of nitrates. Outline the major differences between the action of verapamil and nifedipine.

3.   Describe the terms, 'synergism' and 'antagonism', with respect of drug combinations, giving suitable examples. Explain eight patient-related factors that affect drug responses.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4.   Explain the pharmacological actions of imipramine.   How does it produce its major therapeutic effect?

5.   Describe the signs, symptoms and treatment of acute alcohol poisoning.

6.   Classify drugs used in Parkinson's disease with two examples for each class. Write a short note on dopaminergic agonists as antiparkinsonian agents.

7.   Define & classify general anaesthetics with examples.   Describe the stages of general anesthesia.

8.   Explain the pharmacological actions of aspirin. What is salicylism?

9.   Classify the antiarrhythmic drugs based on their mechanism of action.

10. Explain the mechanisms of action of oral hypoglycemic agents. Mention their adverse effect.

11. Explain factors that affect the absorption of drugs.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Explain the rationale behind combining adrenaline with local anaesthetics.

13. What is Dale's vasomotor reversal response?

14. Why is physostigmine preferred over neostigmine in atropine poisoning?

15. Outline the physiological roles of 5HT.

16. What will happen if corticosteroid therapy is stopped abruptly after prolonged use?

17. Explain the rationale of the therapeutic uses of theophylline (any two).

18. Name four post coital contraceptive preparations.

19. What are the advantages of newer insulin?

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2013

Subject: Community Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Define community pharmacy. Enlist the role and responsibilities of community pharmacist and explain the inventory management in community pharmacy.
2. Explain the role of pharmacist in patient counseling while dispensing vitamin preparations. Write the necessary cautions required to be taken while using vitamins.
3. Write on the pathophysiology & management of pain.

II.   **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Design & layout of patient information leaflets.
5. What is the significance of OTC medications?
6. What is rational drug use? Why is rational drug use important?
7. Explain the code of ethics for community pharmacists.
8. Computer application in community pharmacy.
9. Role of community pharmacist in smoking cessation.
10. What are the methods used for screening the blood sugar and cholesterol?
11. Write a note on storage of medications in community pharmacy.

III.   **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Essential drugs list.
13. Causative factor for tuberculosis.
14. Define pharmaceutical care.
15. Define prescription.
16. Define OTC medication.
17. Define medication adherence.
18. Management of diarrhoea.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2013

Subject: Pharmacotherapeutics-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   **2x15=30 Marks**

1. A 60 year old man is under treatment for non insulin dependent diabetes mellitus (NIDDM) for last 15 years. His current treatment is:
    - Glipizide 15 mg twice daily
    - Metformin 850 mg three times daily

    He frequently has glycosuria and the last two glycoslated hemoglobin concentrations have been 11.3% and 12.0%. He is feeling generally unwell and lethargic. Now the doctor advises for insulin treatment. But he lives alone and has poor eye sight. Someone needs to come to his house to give injection. He does not like this.
    a) Why does the patient require insulin therapy?
    b) How might the difficulties over insulin administration be overcome?
    c) What kind of insulin regimen would be appropriate?

2. What is hyperlipidaemia? Classify and explain the aetiology. Write a note on drug therapy to treat hyperlipidaemia.

3. Explain the pathophysiology and clinical manifestations of glaucoma. Write a note on drug treatment protocol.

II. SHORT ESSAY (Answer any SIX questions)   **6x5=30 Marks**

4. What are congenital heart defects?

5. Explain the age related physiological factors that influence dosage.

6. Write the importance of essential drugs concept in public health system.

7. What are drug induced pulmonary diseases?

8. Write the general prescribing guidelines during breast feeding.

9. Write a note on oral contraceptives.

10. Write a note on dietary therapy in the management of diabetes mellitus.

11. Write the factors that influence the choice of treatment in hyperthyroidism.

III. SHORT ANSWERS (Answer any FIVE questions)   **5x2=10 Marks**

12. Give examples of inhaled anti-inflammatory agents used for the treatment of asthma.

13. Write on dietary therapy for hyperlipidaemia.

14. Give the signs and symptoms that suggest hormone replacement therapy.

15. What are emergency contraceptive pills?

16. Write on use of ECG as a diagnostic tool.

17. Write on the principle of treatment of osteoporosis.

18. Enlist the drugs used in angina pectoris.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2011

Subject: Phathophysiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Describe the pathophysiology of
    a) Diabetes.
    b) Hypertension.

2. Explain the pathophysiology, risk factors, signs and symptoms of asthma.

3. Describe the pathophysiology of
    a) Parkinson's disease.
    b) Schizophrenia.

II.   **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Write a note on pathogenesis of alcoholic liver disease.

5. Write a note on nutritional disease.

6. Write the different types and stages of shock.

7. Write a note on cytokines.

8. Explain the signs, symptoms & pathology of peptic ulcer.

9. Describe pathophysiology of CCF.

10. Write the differences between apoptosis and necrosis.

11. Explain the pathogenesis of syphilis and gonorrhea.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Write the process of wound healing.

13. Name the types of viruses causing hepatitis.

14. Write the manifestations of Parkinson's disease.

15. Write the differences between benign and malignant tumor.

16. Name any four diseases caused by vitamin deficiency.

17. Define arthrosclerosis.

18. List the organisms causing UTI.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2011

Subject: Pharmaceutical Microbiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain in detail bacterial identification methods and its importance.
2. Categorize immunological products and describe the general method of *immunization programme and importance of booster dose?* preparing any one of them.
3. What are the factors affecting disinfection process? How are they evaluated?

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Write the principle and uses of immunodiagnostic tests.
5. Write on the applications and advantages of radiation sterilization.
6. Write briefly on ELISA and PCR.
7. Write the modes of transmission, diagnosis and treatment of any two bacterial diseases.
8. Explain bacteria proof filters.
9. Compare the important aspects related to fungi and viruses.
10. Explain selective and differential media.
11. Describe the principle and applications of autoclaving.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Define exotoxin and antigen.
13. Mention two applications of dry heat sterilization.
14. Mention the methods for preservation of cultures.
15. Symptoms and treatment of hepatitis.
16. Expand IMViC test and give its importance.
17. Mention the types of immunity.
18. Write two sentences on phagocytosis.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2011

Subject: Pharmacognosy & Phytopharmaceuticals

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)

2x15=30 Marks

1.   Define plant cell.   Briefly explain the cell wall constituents and cell inclusions.
2.   Describe the morphology and microscopic characters of cinchona and senna.
3.   What are proteins? Classify them with examples. Write their chemistry and analysis.

II. SHORT ESSAY (Answer any SIX questions)

6x5=30 Marks

4.   Write the collection and processing of opium.
5.   Mention the different types of stomata with examples.
6.   Name any two indole alkaloids. Write their biological source, chemical constituents and uses.
7.   Define ash value and write its significance.
8.   Explain the biological evaluation of crude drugs.
9.   Describe the preparation of cotton.
10. Write the pharmacognosy of honey.
11. Write the botanical source, chemical constituents and mechanism of action of pyrethrum as pesticides.

III. SHORT ANSWERS (Answer any FIVE questions)

5x2=10 Marks

12. Adulterants of digitalis.
13. Methods of preservation of crude drugs.
14. Define saponification value.
15. Write the source and uses of ephedrine.
16. Write a note on soil fertility.
17. Define the terms of rhytidoma and coppicing.
18. Define primary and secondary metabolites.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2011

Subject: Pharmacology-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. What are analgesics? Classify them with suitable examples. Give the pharmacological actions, therapeutic uses and adverse effects of morphine.
2. Classify anti arrhythmic drugs. Explain the pharmacological action, mechanism of actions and side effects of drugs acting through sodium channels.
3. Describe the factors modifying drug action.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. With suitable example write the rationale of using dopamine agonist in the treatment of Parkinson's disease.
5. Write a note on mydriatic drugs.
6. What are mucolytics? Give example and its therapeutic uses.
7. Briefly explain the pharmacological actions of beta 2 agonist.
8. Write a note on anti thyroid drugs.
9. Write the mechanism of action and therapeutic uses of uterine stimulant.
10. Classify 5HT antagonist. Write the therapeutic uses of ondansetran.
11. Explain the mechanism of actions of prostaglandins.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Name two drugs that get excreted through tubular secretion.
13. Give the therapeutic uses and category of endrophonium.
14. State the mechanism of action of nicotinic acid.
15. Write the adverse effects of rivastigmine.
16. Give two therapeutic uses of ipatropium.
17. What are the adverse effects produced by rosiglitazone?
18. Name two drugs used as anti platelet aggregation factor.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2011

Subject: Community Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   **2x15=30 Marks**

1.   Write in detail the concept of community pharmacy management.
2.   What are the principles of pharmaceutical care? Add a note on quality assurance of community pharmacy services.
3.   Describe the various techniques of inventory control in community pharmacy.

II.   SHORT ESSAY (Answer any SIX questions)   **6x5=30 Marks**

4.   Describe the role of community pharmacist in smoking cessation.
5.   Write the various stages of patient counseling.
6.   Explain essential drugs concept.
7.   Explain the rational use of common OTC drugs.
8.   Management of worm infestations.
9.   Describe the various applications of computers in pharmacy.
10. What are the patient education strategies that can help improve medication adherence.
11. Describe the clinical presentation and methods of prevention of syphilis and gonorrhea.

III. SHORT ANSWERS (Answer any FIVE questions)   **5x2=10 Marks**

12. What is a buffer stock?
13. What is balanced diet?
14. Define procurement and stocking.
15. Name the parts of a prescription.
16. Symptoms of pyrexia.
17. What is peak flow meter?
18. Role of pharmacist in family planning.

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II ph. D. Oct - 2011   8

QP Code: 4010

JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - October 2011

Subject: Pharmacology-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. What are anticonvulsants? Classify them with suitable examples. State the mechanism of action, therapeutic uses and side effects of diazepam.
2. Classify antihistamines with example. Explain the pharmacological actions, therapeutic uses and adverse effects of any one anti histamine.
3. Explain the factors affecting drug absorption in detail.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. State the advantages of using third generation sulfonylureas over first generation anti diabetic drugs.
5. Explain the mechanism of action of oral contraceptives with example.
6. Write a note on nasal decongestant.
7. What is digitalis? State its mechanism of action and side effects.
8. Explain the mechanism of action and therapeutic uses of steroids used in the treatment of respiratory disorders.
9. Write a note on drugs used in congestive heart failure.
10. Write a note on drugs used in the treatment of Parkinson's disease.
11. Write the therapeutic uses and adverse effects of beta antagonists.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Write the advantages of sublingual route of drug administration.
13. State two differences between d-tubocurarine and succinyl choline.
14. Classify the drugs used in the treatment of angina pectoris.
15. Write the adverse effects of risperidone.
16. What is latanoprost?
17. Give adverse effects of formoterol.
18. What is sitagliptin?

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2011

Subject: Phathophysiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)** 2x15=30 Marks

1. Describe the pathophysiology of
    a) Diabetes.
    b) Hypertension.
2. Explain the pathophysiology, risk factors, signs and symptoms of asthma.
3. Describe the pathophysiology of
    a) Parkinson's disease.
    b) Schizophrenia.

II. **SHORT ESSAY (Answer any SIX questions)** 6x5=30 Marks

4.   Write a note on pathogenesis of alcoholic liver disease.
5.   Write a note on nutritional disease.
6.   Write the different types and stages of shock.
7.   Write a note on cytokines.
8.   Explain the signs, symptoms & pathology of peptic ulcer.
9.   Describe pathophysiology of CCF.
10. Write the differences between apoptosis and necrosis.
11. Explain the pathogenesis of syphilis and gonorrhea.

III. **SHORT ANSWERS (Answer any FIVE questions)** 5x2=10 Marks

12. Write the process of wound healing.
13. Name the types of viruses causing hepatitis.
14. Write the manifestations of Parkinson's disease.
15. Write the differences between benign and malignant tumor.
16. Name any four diseases caused by vitamin deficiency.
17. Define arthrosclerosis.
18. List the organisms causing UTI.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2011

Subject: Pharmaceutical Microbiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Explain in detail bacterial identification methods and its importance.
2. Categorize immunological products and describe the general method of [immunization programme and importance of booster dose?] preparing any one of them.
3. What are the factors affecting disinfection process? How are they evaluated?

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Write the principle and uses of immunodiagnostic tests.
5. Write on the applications and advantages of radiation sterilization.
6. Write briefly on ELISA and PCR.
7. Write the modes of transmission, diagnosis and treatment of any two bacterial diseases.
8. Explain bacteria proof filters.
9. Compare the important aspects related to fungi and viruses.
10. Explain selective and differential media.
11. Describe the principle and applications of autoclaving.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Define exotoxin and antigen.
13. Mention two applications of dry heat sterilization.
14. Mention the methods for preservation of cultures.
15. Symptoms and treatment of hepatitis.
16. Expand IMViC test and give its importance.
17. Mention the types of immunity.
18. Write two sentences on phagocytosis.

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QP Code: 4009

JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2011

Subject: Pharmacognosy & Phytopharmaceuticals

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Define plant cell.   Briefly explain the cell wall constituents and cell inclusions.
2. Describe the morphology and microscopic characters of cinchona and senna.
3. What are proteins? Classify them with examples. Write their chemistry and analysis.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Write the collection and processing of opium.
5. Mention the different types of stomata with examples.
6. Name any two indole alkaloids. Write their biological source, chemical constituents and uses.
7. Define ash value and write its significance.
8. Explain the biological evaluation of crude drugs.
9. Describe the preparation of cotton.
10. Write the pharmacognosy of honey.
11. Write the botanical source, chemical constituents and mechanism of action of pyrethrum as pesticides.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Adulterants of digitalis.
13. Methods of preservation of crude drugs.
14. Define saponification value.
15. Write the source and uses of ephedrine.
16. Write a note on soil fertility.
17. Define the terms of rhytidoma and coppicing.
18. Define primary and secondary metabolites.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2011

Subject: Pharmacology-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. What are analgesics? Classify them with suitable examples. Give the pharmacological actions, therapeutic uses and adverse effects of morphine.

2. Classify anti arrhythmic drugs. Explain the pharmacological action, mechanism of actions and side effects of drugs acting through sodium channels.

3. Describe the factors modifying drug action.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. With suitable example write the rationale of using dopamine agonist in the treatment of Parkinson's disease.

5. Write a note on mydriatic drugs.

6. What are mucolytics? Give example and its therapeutic uses.

7. Briefly explain the pharmacological actions of beta 2 agonist.

8. Write a note on anti thyroid drugs.

9. Write the mechanism of action and therapeutic uses of uterine stimulant.

10. Classify 5HT antagonist. Write the therapeutic uses of ondansetran.

11. Explain the mechanism of actions of prostaglandins.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Name two drugs that get excreted through tubular secretion.

13. Give the therapeutic uses and category of endrophonium.

14. State the mechanism of action of nicotinic acid.

15. Write the adverse effects of rivastigmine.

16. Give two therapeutic uses of ipatropium.

17. What are the adverse effects produced by rosiglitazone?

18. Name two drugs used as anti platelet aggregation factor.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2011

Subject: Community Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Write in detail the concept of community pharmacy management.
2. What are the principles of pharmaceutical care? Add a note on quality assurance of community pharmacy services.
3. Describe the various techniques of inventory control in community pharmacy.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Describe the role of community pharmacist in smoking cessation.
5. Write the various stages of patient counseling.
6. Explain essential drugs concept.
7. Explain the rational use of common OTC drugs.
8. Management of worm infestations.
9. Describe the various applications of computers in pharmacy.
10. What are the patient education strategies that can help improve medication adherence.
11. Describe the clinical presentation and methods of prevention of syphilis and gonorrhea.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. What is a buffer stock?
13. What is balanced diet?
14. Define procurement and stocking.
15. Name the parts of a prescription.
16. Symptoms of pyrexia.
17. What is peak flow meter?
18. Role of pharmacist in family planning.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2010

Subject: Pharmaceutical Microbiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain in detail bacterial identification methods and its importance.   (12+3)

2. Categorize immunological products and describe the general method of   (6+9)
    preparing any one of them.

3. What are the factors affecting disinfection process?   How are they   (6+9)
    evaluated?

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain the principle and uses of immunodiagnostic tests.

5. Write the applications and advantages of radiation sterilization.

6. Write briefly on ELISA and PCR

7. Modes of transmission, diagnosis and treatment of any two bacterial
    diseases.

8. Describe bacteria proof filters.

9. Compare the important aspects related to fungi and viruses.

10. Explain selective and differential media.

11. Principle and applications of autoclaving.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Define exotoxin and antigen.

13. Mention two applications of dry heat sterilization.

14. Mention the methods for preservation of cultures.

15. Symptoms and treatment of hepatitis.

16. Expand IMViC test and give its importance.

17. Mention the types of immunity.

18. Define phagocytosis.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2010

Subject: Pharmacognosy & Phytopharmaceuticals

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain the steps involved in the collection, processing and storage of   (5+5+5)
   crude drugs.

2. What are carbohydrates? Classify them with examples. Write the   (3+5+7)
   identification tests for carbohydrates.

3. Write the definition, history and scope of pharmacognosy.   (3+5+7)

II.   **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Give the cultivation collection, preparations and chemical tests for
   liquorice.

5. Explain the pharmacognostic study of arachis oil.

6. Write the cultivation, collection, constituents and uses of tobacco.

7. Write a note on plant hormones.

8. Explain the microscopy of datura leaf with a neat labeled diagram.

9. Give the source, identification tests and uses of pectin.

10. Describe the different methods of pest control.

11. Write a note on surgical dressings.

III.   **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Enumerate the woven dressings.

13. Chemical tests to identify fixed oils or fats.

14. Chemotaxonomical classification.

15. Chemical tests for opium.

16. Give the method of preparation of olive oil.

17. List the source and uses of two protein drugs.

18. Give the source, constituents and uses of cardamom.

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QP Code: 4010

JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2010

Subject: Pharmacology-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   **Max. Marks: 70**

I. LONG ESSAY (Answer any TWO questions)   **2x15=30 Marks**

1. Describe the various types of receptors with regard to their chemistry and characteristics.
2. Classify cholinergic agents. Explain the pharmacology of neostigmine.
3. Classify antihypertensives. Explain the mechanism of action of enalapril.

II. SHORT ESSAY (Answer any SIX questions)   **6x5=30 Marks**

4. What is Insulin? Explain different preparations of insulin.
5. Explain the mechanism of action of digitoxin.
6. Write the use of corticosteroids as bronchodilators.
7. Classify adrenergic agents and write their therapeutic uses.
8. Write a note on antithyroid drugs.
9. Explain the mechanism of action of phenobarbitone as anticonvulsant.
10. Explain the different classes of drugs used in treatment of glaucoma.
11. Describe Phase-I reactions. Add a note on enzyme inducers.

III. SHORT ANSWERS (Answer any FIVE questions)   **5x2=10 Marks**

12. Define bioequivalence.
13. What is zero order kinetics?
14. Drug used to treat hypertriglyceremia.
15. Name the oral contraceptives with dosages.
16. Name the factors modifying drug action.
17. What is levodopa?
18. Name the drugs used to treat insecticide poisoning.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2010

Subject: Community Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain the role of the community pharmacists in promoting improved health care and rational use of medicines in the community.

2. Giving an example of ideal prescription, explain the importance of various parts of a prescription from pharmacists' point of view.

3. Describe the clinical symptoms of pulmonary tuberculosis (TB) and suggest the measures the community should initiate for prevention of TB.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain the importance of various registers a community pharmacist is expected to maintain to comply with legal requirements.

5. Describe how the use of computers improves the community pharmacy services.

6. Design a patient information leaflet for use of antibiotics.

7. Explain the importance of blood sugar testing in routine health screening.

8. How constipation can be addressed (treated) in community pharmacy practice?

9. Explain 'balanced diet'.

10. How does a community pharmacist deal with other health care professionals in the community?

11. Describe the counseling points while dispensing oral rehydration salts (ORS).

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Define essential drugs.

13. What are over the counter (OTC) medications? Give two examples.

14. What is lead time in drug procurement?

15. What medicines can be given for treating pyrexia?

16. What are the causative factors for typhoid?

17. Define pharmaceutical care.

18. What is the minimum space requirement specified in Drugs and Cosmetics Act and the Rules to start a community pharmacy?

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II year pharm. D. May-2010

QP Code: 4012

JSS UNIVERSITY, MYSORE
Second Year Pharm.D Examination - May 2010
Subject: Pharmacotherapeutics-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   **2x15=30 Marks**

1. a) Explain the treatment protocol of myocardial infarction.   (8+7)

    b) Describe the treatment of angina pectoris.

2. Ms. Latha of 50 years has been attending the anticoagulant clinic for   (5+5+5)
    several years. She is on long term anticoagulant therapy following a
    prosthetic heart valve replacement 3 years ago. Recently her
    anticoagulant control has been difficult and she has required decreasing
    doses of warfarin to maintain a therapeutic INR.

    Other recent symptoms include diarrhoea and weight loss which has
    been investigated by her doctor. The investigation revealed that she has
    hyperthyroidism. Her current drug therapy is:
    - Warfarin 2 mg daily.
    - Loperamide 2 mg as required.

    a) How does thyroid disease influence warfarin dosage?
    b) How is hyperthyroidism diagnosed?
    c) What will happen to Ms. Latha's warfarin requirements when her
        hyperthyroidism is treated?

3. A 45 years old lady has been suffering from insulin dependent diabetes   (8+7)
    mellitus for the last 15 years. Initially her glycaemic control was poor and
    she showed little interest on her disease. However in recent years she
    has become much more involved in her diabeters management. In spite
    of the improved control she has had proteinuria for several months. This
    is being closely monitord by the diabetic clinic. On the last two occasions
    her blood pressure was 160/95 mmHg and 155/90 mmHg. Today the
    blood pressure is recorded as 165/95 mmHg and decided to start
    antihypertensive therapy. The patient does not smoke, is not over weight
    and eats a healthy balanced diet.

    a) Why is the management of hypertension of particular importance in
        diabetes?
    b) Which drug(s) would be appropriate for the management of
        hypertension in this patient?

PTO

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**
   4. How is paediatric dose calculated?
   5. Write the principles that need to be considered while prescribing to elderly patients.
   6. Write the various strategies recommended for promoting rational drugs use in the health system.
   7. How is viral conjunctivitis treated?
   8. Narrate the prescribing guidelines in pregnancy.
   9. Explain hormone replacement therapy.
   10. How does COPD differ from asthma?
   11. Insulin therapy in the management of diabetes mellitus.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**
   12. What is body mass index? Explain its usefulness.
   13. Define essential drugs.
   14. Give optimum serum lipid profile.
   15. Use of diuretics in hypertension.
   16. Preventive therapy for asthma.
   17. Name the drug induced pulmonary diseases giving the drug responsible?
   18. Importance of glycosulated haemoglobin.

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QP Code: 4007

JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2012

Subject: Pathophysiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Enumerate the classification of tumors and explain the aetiology and cell cycle of cancer.
2. Explain the pathophysiology, risk factors, signs and symptoms of diabetes mellitus.
3. Describe the pathogenesis of sexually transmitted diseases.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Write a note on pathogenesis of acute inflammation.
5. Write a note on autoimmunity.
6. Explain the different type of necrosis.
7. Explain the various types of stroke.
8. Explain the signs, symptoms & pathology of tuberculosis.
9. Briefly describe pathophysiology of COAD.
10. Write the differences between active and passive immunity.
11. Describe the pathogenesis of infective hepatitis.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Differentiate stable and unstable angina.
13. List the different types of anemia.
14. Write the manifestations of Parkinson's disease.
15. What is amyloidosis?
16. List the constituents of cigarette smoke.
17. Classify and write examples of the factors that causes cell injury.
18. Enlist the organisms causing UTI.

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QP Code: 4008

JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2012

Subject: Pharmaceutical Microbiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. Explain the factors affecting bacterial growth. Add a note on types of
    nutrient media.   (10+5)

2. What are the official sterilization methods? Write their applications,
    advantages and validation procedure.   (6+3+3+3)

3. Define immunity and elaborate on different types of immunity. What are
    antigen antibody interactions and their importance?   (2+8+3+2)

II.   **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Write the modes of transmission, diagnosis and treatment of any two viral
    diseases.

5. What are toxoids and how are they prepared in general?

6. Explain the microbiological assay of penicillin.

7. Bacterial viable count methods.

8. Principle involved in sterility testing of pharmaceuticals.

9. Immunization schedule.

10. Morphology and identification of fungi.

11. Acid fast staining.

III.   **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Define virus and fungi.

13. Differentiate antiseptic and disinfectant.

14. Expand PCR and give two applications.

15. Mention the categories of disinfectants with one example for each.

16. Write two points on rickettsiae.

17. Define vaccine and sera.

18. Diagnostic tests for tuberculosis.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2012

Subject: Pharmacognosy & Phytopharmaceuticals

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   2x15=30 Marks

1.   Describe the different methods of classification of crude drugs.

2.   Describe the pests affecting medicinal plants and the methods of pest control.   (8+7)

3.   Define lipids. Give the source, cultivation, method of preparation,   (2+2+3+3+2+2+1)
     constituents, uses and adulterants of turpentine oil.

II.   SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4.   Write the complete pharmacognosy of agar.

5.   Write a note on the cultivation of medicinal plants in India.

6.   Explain the pharmacognosy of gelatin.

7.   Describe the method of cultivation and uses of opium.

8.   Give the steps involved in the collection and processing of crude drugs.

9.   Give the powder microscopy of ephedra with neat labeled diagram.

10. Explain the pharmacognosy of isapgol.

11. Give the methods of adulteration of crude drugs.

III.   SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. Write a note on rayon.

13. Give the source and active constituents of neem leaf.

14. Give the tests for tropane alkaloids.

15. Name the various organelles of a plant cell.

16. Define saponification value and acid value.

17. Polyploidy.

18. Enumerate the commonly used fertilizers.

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QP Code: 4010

JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - May 2012

Subject: Pharmacology-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.	LONG ESSAY (Answer any two questions)	2x15=30 Marks

1. Classify adrenergic drugs. Explain the pharmacological actions of adrenaline.
2. Describe the various factors affecting drug absorption.
3. What is hyperlipidaemia? Classify hyperlipidaemic agents. Describe the mechanism of action of statins.

II.	SHORT ESSAY (Answer any six questions)	6x5=30 Marks

4. Explain the different stages of anesthesia.
5. Write the pharmacological actions of propranolol.
6. Write a note on insulin.
7. Classify NSAIDs.
8. Describe the pharmacological actions of chlorpromazine.
9. Classify anti anginal agents with examples.
10. Describe the major receptor families for drug action.
11. Write a note on anti cholinesterase inhibitors.

III.	SHORT ANSWERS (Answer any five questions)	5x2=10 Marks

12. Define prostaglandins.
13. Clinical use of PAF (platelet activating factor).
14. Define antitussive with examples.
15. What are cognition enhancers, give one example.
16. Clinical uses of gabapentin.
17. What is chronic toxicity?
18. Name the uterine stimulants and give their clinical use.

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35

QP Code: 4011

JSS UNIVERSITY, MYSORE
Second Year Pharm.D Examination - May 2012
Subject: Community Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Explain the pathophysiology and management of commonly occurring ophthalmic diseases.
2. Explain the reasons for exercising caution when using medications in the elderly patients.
3. Explain the factors affecting 'medication adherence' and describe the role of pharmacist in improving adherence.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Role of pharmacists in improving rational drug use.
5. Explain the role of pharmacist in family planning.
6. Maintenance of records in community pharmacy.
7. Write a note on community pharmacist services to nursing at home.
8. Write a note on code of ethics for community pharmacists.
9. Explain the barriers to communication.
10. Explain the role of pharmacist in health screening in community pharmacies.
11. Write on legal requirements for establishing a community pharmacy.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. WHO definition of health and health promotion.
13. Common drug therapy for nausea and vomiting.
14. Vitamin C deficiency.
15. Enlist four communicable diseases.
16. What medicines can be given for treating pyrexia?
17. What are EOQ and VED?
18. Symptoms of constipation.

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QP Code: 4012

JSS UNIVERSITY, MYSORE
Second Year Pharm.D Examination - May 2012

Subject: Pharmacotherapeutics-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. a) Describe the treatment of hyperlipidemia.
    b) Explain the pharmacotherapy of myocardial infarction.   (7+8)

2. Mrs. Sudha is a 50 year old lady who has recently been found to have glycosuria. When screened by her general practitioner, the diagnosis of diabetes was subsequently confirmed. She was given an appointment to meet the dietitian, commenced on only glibenclamide 5 mg / o.d, and trained how to carry out urine glucose monitoring at home. The dietitian gives general dietary advice and a reduced calorie diet as she has a body mass index of 30. After 4 weeks she returned to see her GP and complained that she had two episodes of shaking and dizziness in the last week.
    a) What might be the cause of Mrs. Sudha's current symptoms?
    b) How might these symptoms be alleviated?   (8+7)

3. Mr. C.K.S is a 64 years old man has a history of chronic obstructive airway disease (COAD) and congestive heart failure. Mr. C.K.S was admitted to a medical ward with increasing breathlessness, wheeze, protective cough with sputum and cyanosis. He was diagnosed as having an infective exacerbation of his airway disease and started on cefuroxime 750 mg / 8 hourly as intravenous injection along with the nebulizer (he normally takes salbutamol 2.5 mg - 8 hourly and ipratropium bromide 500 mcg-8 hourly) which were increased to 4 hourly regimen. One hour after admission his atrial blood gases were.

			Reference range
pH	-	7.37	(7.35 – 7.45)
pCO_2	-	7.5 kpa	(4.6 – 6.0)
pO_2	-	4.5 kpa	(12 – 16)
Standard bicarbonates	-	32.3 mmol/L	(22 – 28)
Base excess		+ 6.5	(-2 +2)
Oxygen saturation		63.7%	

He was diagnosed as being in respiratory failure.
    a) What type of respiratory failure does this patient have?
    b) Is there any value in using respiratory stimulant for Mr. C.K.S?
    c) What is the role of artificial ventilation in COAD?   (6+6+3)

II.   SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4.   How is glaucoma treated?
5.   Narrate the prescribing guidelines for geriatrics.
6.   Explain in briefly about oral contraceptives.
7.   List out the pulmonary function tests and their significance.
8.   Write the role of pharmacist in promoting rational drug use.
9.   How is congestive heart failure treated?
10.   Write in detail about drug induced pulmonary diseases.
11.   List out the various thyroid diseases with their pharmacotherapy.

III.   SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12.   Give the formula used to calculate pediatric dose from an adult dose.
13.   Explain about vasodilators in hypertension.
14.   How is body mass index calculated? Write about its importance.
15.   Importance of glycocylated haemoglobin.
16.   Inhalation therapy for asthma.
17.   Write about role of vit.D_3 in osteoporosis.
18.   Tetracyclines are not prescribed for lactating mothers. Why?

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22

QP Code: 4009

JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - November 2012
Subject: Pharmacognosy & Phytopharmaceuticals

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   Define adulteration. Describe the different methods of adulteration of crude drugs.
2.   Elaborate on the cultivation of medicinal plants, its merits and demerits.
3.   Define proteins. Give the classification, chemistry and method of analysis of proteins.

II.   **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Describe the various plant cell inclusions.
5.   Write a note on natural pesticides.
6.   Explain the microscopy of coriander with neat labeled diagram.
7.   Describe the various analytical parameters for lipids.
8.   Give the source, method of preparation, constituents, uses and adulterants of linseed oil.
9.   Explain the method of cultivation and uses of ginger.
10. Give the complete pharmacognostic study of sodium alginate.
11. Write a note on sutures.

III.   **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Modified Borntrager's test.
13. Write the source and use of chaulmoogra oil.
14. Give the source and constituents of pyrethrum.
15. Determination of ester value.
16. Chemical methods of pest control.
17. Edible vaccines.
18. Give the source, constituents and uses of opium.

*****

23

QP Code: 4010

JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - November 2012

Subject: Pharmacology-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1.   Define and classify anticonvulsants. Explain the mechanism of action, pharmacology, uses and adverse effects of phenytoin.   (3+4+8)

2.   What are antihypertensives? Classify them with suitable examples. Describe the pharmacology, mechanism of action, uses and adverse effects of ACE inhibitors.   (3+4+8)

3.   Define and classify anti-psychotic drugs. Write the pharmacology, mechanism of action, uses and adverse effects of phenothiazines.   (3+4+8)

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4.   Classify bronchodilators and give the pharmacology of salbutamol.
5.   Enumerate the pharmacology of organic nitrates.
6.   Describe the pharmalogical actions of opium alkaloids.
7.   Factors affecting absorption of drugs.
8.   Give a detailed note on irreversible anticholinesterases with example.
9.   Write the pharmacological actions of potassium channel blockers.
10. Write a note on sodium valproate.
11. Write a short note on MAO inhibitors.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Define mucolytics with examples.
13. Define mydriatics and paralysis of accommodation with examples.
14. Write the mechanism of action of levodopa.
15. Define and classify receptors.
16. What is volume of distribution?
17. Name two selective Cox-2 inhibitors and mention their common side effects.
18. Write the mechanism of action of prazosin and its uses.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - November 2012

Subject: Pharmacotherapeutics-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours　　　　　　　　　　　　　　　　　Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**　　　　2x15=30 Marks

1. a) Explain in detail about the treatment of cardiac arrythmias　(5+10)
   b) Explain the aetiopathogenesis and pharmacotherapy of diabetes.

2. Mrs V. M., a 40 year old 65 kg woman was recently discharged from hospital with the following medications.
   - Digoxin 0.375 mg/o.d.
   - Carbimazole 10mg/t.d.s.
   - Frusemide 40 mg/o.d.
   - Propronolol 40 mg/t.d.s
     a) How would you respond to this prescription?　(5+5+5)
     b) What information would you seek to maintain your patient records?
     c) What would you discuss with the patient/prescriber?

3. Mrs A.D a 60 years old woman with chronic asthma and mild heart failure has been receiving:
   - Bendrofluazide 10 mg each morning
   - Predinisolone 5 mg daily
   - Sulbutamol inhaler 2 puffs-6 hourly
   - Beclomethasone inhaler 2 puffs-6 hourly
   - Megnesium trisilicate 10 ml s.o.s

   The patient is breathless at night and is kept awake with a painful knee. Her general practitioner has prescribed naproxen 250 mg t.i.d.
     a) Would you dispense the prescription? Explain.
     b) What advise would you give to the patient/prescriber?　(7+8)

II. **SHORT ESSAY (Answer any SIX questions)**　　　　6x5=30 Marks

4. How is bacterial conjunctivitis treated?
5. Explain the pharmacotherapy of chronic obstructive airway disease.
6. Treatment of hypertension.
7. Narrate the prescribing guidelines in pregnancy.
8. Define and explain essential drug concept.
9. Explain the triggering factors for asthma.
10. Write the pathophysiology and treatment of hypothyroidism.
11. Describe hormone replacement therapy.

PTO

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. What is diabetic foot? How is it assessed?

13. Define forced expiration volume and its significance.

14. Use of aspirin in angina pectoris.

15. Mention the normal lipid profile values.

16. Give the formula used to calculate the pediatric dose based on body weight.

17. Various types of human insulin preparations.

18. Advantages and disadvantages of inhalation therapy.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - November 2013

Subject: Pathophysiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Describe the different types, mechanism, stages and management of shock.
2. Explain the aetiology, pathogenesis and diagnosis of cancer.
3. Explain the signs, symptoms, pathophysiology and risk factors for diabetes mellitus.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Describe the abnormalities in lipoproteinaemia.
5. Write a note on fibrosis.
6. Explain the mechanism of autoimmune disease.
7. Write a note on alcohol abuse and its ill effect.
8. Explain the pathogenesis of syphilis.
9. Explain the signs and symptoms of leprosy.
10. Write a note on air pollution.
11. Describe invasions and metastasis.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. List the syndromes due to deficiency of vitamins.
13. What are the complications associated with obesity?
14. Define polyol pathway.
15. Write the general properties of cytokines.
16. Write a short note on Sjogren's syndrome
17. Draw a neat flow chart for progression of liver disease.
18. Write the clinical manifestations of renal diseases.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - November 2013

Subject: Pharmaceutical Microbiology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   **Max. Marks: 70**

I. LONG ESSAY (Answer any two questions)   **2x15=30 Marks**

1. Describe the factors affecting bacterial growth. Add a note on types of nutrient media.

2. What are the different official sterilisation methods? Write the applications, advantages and validation procedure for the methods.

3. Define immunity and elaborate on different types of immunity. What are antigen antibody interactions and their importance?

II. SHORT ESSAY (Answer any six questions)   **6x5=30 Marks**

4. Modes of transmission, diagnosis and treatment of any two viral diseases.

5. What are toxoids and how are they prepared in general?

6. Microbiological assay of penicillin.

7. Bacterial viable count methods.

8. Principle involved in sterility testing of pharmaceuticals.

9. Immunization schedule.

10. Morphology and identification of fungi.

11. Acid fast staining.

III. SHORT ANSWERS (Answer any five questions)   **5x2=10 Marks**

12. Define virus and fungi.

13. Differentiate antiseptic and disinfectant.

14. Expand PCR and give two applications.

15. Mention the categories of disinfectants with one example for each.

16. Principle of Western blot lest.

17. Define vaccine and sera.

18. Diagnostic tests for tuberculosis.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - November 2013

Subject: Pharmacognosy & Phytopharmaceuticals

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

   1. Classify crude drugs based on their chemical and pharmacological properties.
   2. Define alkaloids. Explain the methods of isolation of alkaloids with chemical tests.
   3. Explain the morphology and microscopy of clove and coriander.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

   4. Cultivation and collection of ergot alkaloids with confirmatory test.
   5. Write a note on cell inclusions with examples.
   6. Process involved in cinchona cultivation.
   7. Preparation, chemical constituents and adulterants of castor oil & bees wax.
   8. Write a note on plant fibres used in surgical dressings.
   9. Classification of essential oils.
   10. Methods of analysis of lipids.
   11. Write a note on marine pharmacognosy.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

   12. Define ash value.
   13. Detection of adulteration of honey.
   14. Biological source of sodium alginate.
   15. Therapeutic uses of liquorice.
   16. Constituents of tragacanth.
   17. Morphology of isabgol.
   18. Uses of neem.

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - November 2013

Subject: Pharmacology-I

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   **2x15=30 Marks**

1. Classify antipsychotic drugs with examples. Describe the mechanism of   (3+4+8)
    antipsychotic action. Explain the mechanisms involved in extrapyramidal
    symptoms of typical antipsychotic drugs and how to overcome these.

2. Classify antihypertensives based on their sites of action. List any four   (5+5+5)
    advantages of calcium channel blockers as antihypertensives.   Outline
    the major adverse effects of beta-blockers.

3. Classify receptor super families with examples. Briefly explain the   (5+10)
    mechanisms of operation of these receptors.

II.   SHORT ESSAY (Answer any six questions)   **6x5=30 Marks**

4. Describe the mechanism of action and pharmacological actions of L-dopa.

5. Explain the mechanism of action, therapeutic uses and adverse effects of
    phenytoin.

6. Explain the mechanism of action of benzodiazepines with a neat
    diagram. Give two reasons why benzodiazepines are better hypnotics
    than barbiturates.

7. Classify general anaesthetics and explain the objectives of pre-
    anaesthetic medication with one drug each to achieve them.

8. Classify NSAIDs. What are the advantages of COX_2 selective drugs?

9. Explain the synthesis of thyroid hormones. How do antithyroid drugs
    interfere with this process?

10. Define drug distribution. Describe the process of drug distribution

11. Explain cholinergic transmission and the drugs affecting it.

III.   SHORT ANSWERS (Answer any five questions)   **5x2=10 Marks**

12. Explain the roles of beta-3 receptors in ANS.

13. Enlist the differences between atropine and scopolamine.

14. Why is neostigmine chosen over physostigmine in myasthenia gravis?

15. List the uses and side effects of salbutamol.

16. Name any four antitussives. Mention the side effects of any one.

17. Sildenafil is useful in erectile dysfunction. Explain

18. What is the role of thiazolidinedione derivatives in NIDDM?

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JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - November 2013

Subject: Community Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

  1. Explain the barriers in patient counseling. What strategies can be   (6+9)
      adopted to promote patient counseling in community pharmacy practice?

  2. Explain the role of community pharmacists in health promotion and family
      planning.

  3. Explain the procedure for performing ABC and VED analysis. How can   (8+7)
      these results be used in inventory control of community pharmacy?

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

  4. Write an ideal prescription.

  5. How can the community pharmacists promote rational use of medicines
      in the community?

  6. Design a patient information leaflet for safe and effective use of eye drop.

  7. Explain the importance of serum cholesterol testing in routine health
      screening.

  8. What is medication adherence? How can this be improved?

  9. What is safety stock? Explain.

  10. How does a community pharmacist deal with customers?

  11. Outline a pharmaceutical care plan for a common symptom of your
      choice.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

  12. What are the symptoms of diarrhoea?

  13. How is blood pressure measured?

  14. Name four OTC drugs.

  15. What are the registers a community pharmacy needs to maintain?

  16. What is economic order quantity?

  17. What are the preventive measures recommended for sexually transmitted
      diseases?

  18. Write a note on use of computers in community pharmacy.

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JSS UNIVERSITY, MYSORE
Second Year Pharm.D Examination - November 2013
Subject: Pharmacotherapeutics-I

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. A 65 year old man is admitted to a hospital after fall due to black out while shopping in mall. He had been unable to get up as his right arm and leg were numb, so the shop keeper arranged an ambulance to send him to hospital. His previous medical history is not significant. He had never experienced a similar black out before. On examination his blood pressure is found to be 170/110mm Hg and pulse rate is 75 beats per minute. He is a smoker. Further observation confirmed that the patient is hypertensive. His serum biochemistry and haematology results are reported to be within normal range.
    a) What are the problems of the patient? What is the reason for fall?
    b) Suggest method for controlling blood pressure.
    c) What other treatments should be offered to the patient?

2. Ms. Latha aged 24 years, is admitted to hospital with an acute exacerbation of asthma. She was first diagnosed as being asthmatic at the age of 6 years. Recently the disease has been progressively worse and required numerous hospital admissions. On this admission she has been prescribed as follows:
    - Salbutamol MDI 200 microgram four times a day
    - Ipratropium bromide MDI 40 microgram four times a day
    - Beclomethasone MDI 40 microgram four times a day
    - Prednisolone tablets 10 mg every morning
    - Ranitidine tablets 150 mg twice a day

    On examination she was found to be very anxious, tachypnoeic, cyanosed and unable to speak. Her temparature is 40° C. Her PEFR is not recordable. Blood pressure is normal. Chest X ray showed no evidence of pneumonia. Her blood gases are PCO_2= 7.49 kPa(high), PO_2=14.5 kPa (normal), pH=7.3 (low), HCO_3=23 mmo1/L (low end of normal range).
    a) What are the acute symptoms of asthma manifested in this patient?
    b) What is the most appropriate first course of action in this patient?
    c) Explain how respiratory acidosis has occurred.

3. A 60 year old lady has recently been complaining of tiredness, lethargy and weight gain. Routine investigation confirms hypothyroidism. She had a myocardial infarction and has suffered from exertional angina for last several years. Currently she is taking:
    - Isosorbide mononitrate 20 mg at 8 am and 2 pm
    - Glyceryl trinitrate 500 microgram sublingually as required
    - Aspirin 150 mg at 8 am

    Now it is proposed to provide thyroxine replacement therapy.
    a) What are the therapeutic objectives in this patient?
    b) How should thyroxine therapy be instituted?
    c) How should replacement therapy be monitored?

PTO

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4. What general factors need to be considered in prescribing paediatric patients?

5. What are the causes of confusion in elderly patients?

6. Write the pros and cons of fixed dose combinations in clinical practice.

7. How is glaucoma treated?

8. What are the drugs contraindicated during pregnancy?

9. What are drug induced pulmonary diseases? How can they treated?

10. Describe the clinical manifestations of diabetes mellitus.

11. Explain the problems of hyperlipidaemia.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Define essential drugs.

13. Define cardiac arrhythmia.

14. List the risk factors for myocardial infarction.

15. What are normal blood glucose levels?

16. What are oral contraceptives? Give examples.

17. What laboratory investigations are usually suggested in asthma?

18. What are the adverse effects of sulphonylureas?

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4

QP Code: 4008

JSS UNIVERSITY, MYSORE
Second Year Pharm.D Examination - October 2011
Subject: Pharmaceutical Microbiology

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   **2x15=30 Marks**

1. Describe the methods of isolation of bacteria and their preservation.

2. Describe the preparation of any one toxoid. Briefly write on vaccine schedule and importance of booster dose.

3. Define sterilization and compare moist heat and dry heat sterilization in detail.

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4. Write the applications and advantages of filtration sterilization.
5. Write the modes of transmission, diagnosis and treatment of tuberculosis.
6. Explain evaluation methods of disinfectants.
7. Describe active and passive immunity.
8. Write briefly on malaria.
9. Classification of bacteria.
10. Explain the principle of microbiological assays.
11. Describe differential staining.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Principle and application of Widal test.
13. Differentiate prokaryotes and eukaryotes.
14. Define immunology and immunity.
15. Mention the types of antigen antibody reactions.
16. Give one example for selective and differential media.
17. Expand BCG and MMR.
18. Give two examples of radiations used for sterilization.

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5

QP Code: 4009

JSS UNIVERSITY, MYSORE

Second Year Pharm.D Examination - October 2011

Subject: Pharmacognosy & Phytopharmaceuticals

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. What is adulteration? Explain the different types of adulteration with examples.
2. What are lipids? Describe their methods of extraction, chemistry and analysis.
3. Describe the factors affecting the cultivation, collection and processing of crude drugs.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Define mucilage. Mention the difference between gums and mucilages.
5. Name any two crude drugs that belong to apocyanacea. Write their biological source, chemical constituents and uses.
6. Write the pharmacognosy of isapgol.
7. Identification test for plant fibers.
8. Write any two microscopical characteristics of clove.
9. Write a short note on neem.
10. Write the biological source, chemical constituents and uses of nuxvomica.
11. Write any two bark drugs and write their sources and uses.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. What is biological classification?
13. Describe Borntrager's test.
14. Source and uses of agar.
15. Chemical tests for tragacanth.
16. Source and uses of gelatin.
17. Identification test for honey.
18. Chemical constituents and uses of cod liver oil.

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13

JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - May 2011

Subject: Pharmacology-II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   **Max. Marks: 70**

I.   **LONG ESSAY (Answer any two questions)**   **2x15=30 Marks**

1. a) Explain the role of vitamin B_{12} and folic acid in the treatment of   (5+5)
       megaloblastic anaemia.
    b) Define antacids. Describe sodium bicarbonate as an antacid.   (1+4)

2. a) Classify immunosuppressant drugs. Explain the mechanism of action,   (3+3+2+2)
       therapeutic uses and adverse effects of calcineurin inhibitors.
    b) Describe the mechanism of action and therapeutic uses of   (2+3)
       albendazole.

3. a) Explain the cell cycle with emphasis on cell cycle regulators and   (4+3+3)
       modifiers.
    b) Describe the transcription factors that regulate the transcription in   (5)
       prokaryotes.

II. **SHORT ESSAY (Answer any six questions)**   **6x5=30 Marks**

4.   Classify plasma volume expanders. Write a note on dextran.   (2+3)

5.   Define laxatives. Explain lubricant laxatives.   (1+4)

6.   Explain the role of ion channel receptors in cell signalling.

7.   Classify penicillins. Write a note on beta lactamase inhibitors.   (2+3)

8.   Write a note on chloramphenicol.

9.   Explain the pharmacology of dapsone.

10. Write a note on oncogenes.

11. Write a note on DNA replication.

III. **SHORT ANSWERS (Answer any five questions)**   **5x2=10 Marks**

12. Mechanism of vinca alkaloids as anticancer agents.

13. Name any four natural anticoagulants.

14. Therapeutic uses of loop diuretics.

15. Write the mechanism of action of cotrimoxazole.

16. Mention the adverse effects of aminoglycoside antibiotics.

17. Define acute toxicity studies.

18. Mention any four principles of bioassay.

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JSS UNIVERSITY, MYSORE

Third Year Pharm. D Examination - May 2011

Subject: Pharmacotherapeutics-II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   **2x15=30 Marks**

1.   A 72 year-old man has been feeling tired and lethargic for 5 months. He has noted increasing hesitancy with urination. On physical examination his prostate is diffusely enlarged. Laboratory studies show sodium 139 mmol/L, chloride 104 mmol/L, CO_2 25 mmol/L, creatinine 1.9 mg/dL and glucose 81 mg/dL. Which of the following renal abnormalities is most likely to be present in this man? Is the patient suitable candidate for renal dialysis? Justify. Add a detailed note on the etiopathogenesis and management for the disease.
    a) Cortical atrophy
    b) Glomerulonephritis
    c) Papillary necrosis
    d) Polycystic change
    e) Renal cell carcinoma.

2.   A woman in her 50s is admitted to hospital with shortness of breath. She has lived in cement industrialized area. She subsequently develops a non-productive cough. Bronchial washings are smear negatives for acid-fast bacilli but *M tuberculosis* is isolated from the sample. Early sputum samples are smear negative but later samples are smear positive.
    a) What form of tuberculosis does the patient have?
    b) Should she be in isolation?
    c) What treatment should she receive for her tuberculosis?
    d) Is she at low or high risk for drug resistant tuberculosis?
    e) What further microbiological investigations would be essential?

3.   A 30 year old patient with ALL is undergoing chemotherapy and needs intrathecal chemotherapy to prevent relapse in the meninges. Giving drugs by this route is extremely dangerous. Several patients died as a result of the inadvertent administration of vinca alkaloids into the CSF. What steps have been taken nationally to try to prevent the inadvertent intrathecal injection of vincristine and other agents non suitable for intrathecal use? Write a brief note on the types of interventions and life style modification that can be given for this patient.

II.   SHORT ESSAY (Answer any six questions)   **6x5=30 Marks**

4.   Explain the symptoms, signs, causes and treatment of septicemia.

5.   What can be done to improve rational use of antibiotics? Add a note on consequences of incorrect use of antibiotics.

PTO

6. Explain multitude of patterns of drug-induced renal failure.

7. Describe treatment of viral meningitis.

8. Describe the prevention and treatment of gonorrhea.

9. Explain the basic principles of cancer therapy.

10. Write the symptoms and signs of eczema in babies, children and adults. Add a note on atopic dermatitis. Psoriasis

11. Explain the etiopathogenesis of syphilis.

III. SHORT ANSWERS (Answer any five questions) 5x2=10 Marks

12. Mention few drugs which induces gout.

13. Chemotherapy for ovarian cancer. Breast

14. Explain the different stages of cancer.

15. Etiology of spondylitis.

16. Mode of transmission of HIV.

17. Symptoms of urinary tract infections.

18. Mention the drugs for the treatment of malaria.

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JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - May 2011

Subject: Pharmaceutical Jurisprudence

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any two questions)** 2x15=30 Marks

1. What is "manufacture in bond"? Outline the procedure to be followed in obtaining a license for the establishment of a bonded laboratory. Mention the requirements for construction of a "bonded laboratory".

2. Give an account of constitution and function of Pharmacy Council of India constituted under the Pharmacy Act 1948.

3. Write the types and classes of advertisements that are prohibited under Drugs and Magic Remedies Act. Describe the classes of advertisements that are exempted from its provision.

II. **SHORT ESSAY (Answer any six questions)** 6x5=30 Marks

4. Explain the process of registration of a pharmacist.
5. Explain the duties of a government analyst.
6. Write the salient features of Pharmaceutical Policy 2002.
7. Write the constitution and function of Drug Consultative Committee.
8. Write the objectives and functions of institutional animal ethics committee.
9. Write the pharmacists' oath.
10. Write a note on prescription and non prescription products.
11. Explain the general labeling requirements for drugs and cosmetics.

III. **SHORT ANSWERS (Answer any five questions)** 5x2=10 Marks

12. Mention the offences and penalties under the Narcotics Act.
13. Mention the duties of chemists and druggists.
14. Define loan license.
15. Define patent or proprietary medicine.
16. Define schedule M & Y.
17. Write the role of drug inspectors.
18. How is the retail price of a formulation calculated under DPCO?

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JSS UNIVERSITY, MYSORE
Third Year Pharm.D Examination - May 2011
Subject: Medicinal Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   **2x15=30 Marks**

1. Define and classify diuretics with examples. Describe the synthesis of (9+3+3)
    frusemide. Explain SAR of thiazide diuretics.
2. Define and classify antibiotics with examples.   Write a note on (9+3+3)
    tetracyclines. Explain the synthesis of chloramphenicol.
3. Define and classify antihypertensives with examples. Write the structure (9+3+3)
    of one drug in each class. Explain the synthesis of propranolol.

II.   SHORT ESSAY (Answer any six questions)   **6x5=30 Marks**

4. Write a note on prodrug application.
5. Classify antimalarial agents with examples.   Write the synthesis of
    pamaquine.
6. Write the synthesis of ciprofloxacin and trimethoprim.
7. What are anticoagulants? Explain the mechanism of action of dicumarol.
8. Define and classify antineoplastic agents with examples.
9. Explain the SAR and mechanism of action of sulphonamides.
10. What are local anti-infective agents? Write a note on nitrofurans.
11. Write the synthesis of sulphacetamide and acetazolamide.

III. SHORT ANSWERS (Answer any five questions)   **5x2=10 Marks**

12. Write the structure and medicinal uses of amyl nitrite and phenytoin.
13. Write the chemical structure of any two cephalosporins.
14. Write the synthesis of INH.
15. Give the structure of any two antineoplastic agents.
16. Write the mechanism of action of quinolone antimalarials.
17. Write the structure and uses of amantidine and metronidazole.
18. Write the structure and uses of mebendazole and pyrazinamide.

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JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - May 2011

Subject: Pharmaceutical Formulations

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1.   What are capsules? Describe the formulation of soft gelatin capsules and   (1+14)
     hard gelatin capsules.

2.   a) What are tablet excipients? Give examples. Write their advantages   (7)
     and disadvantages.
     b) Explain the various granulation techniques used for making tablets.   (8)

3.   What are buccal dosage forms? Explain the mechanism of buccal   (1+5+9)
     absorption. Explain the formulation approaches of buccal formulations.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4.   Describe the quality control tests for tablets.

5.   Explain the formulation of liquid orals.

6.   Write a note on parenteral emulsions.

7.   Explain the quality control tests for parenterals.

8.   What are the ideal characteristics of the materials used for film coating?

9.   Classify the ointment bases with examples. Write a note on miscible
     bases.

10. Write the advantages and limitations of implants.

11. Write a note on long acting parenterals.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Name the granulations methods.

13. Write two differences between gels and ointments.

14. Write two differences between implants and injectables.

15. Name two sources of contamination and methods of prevention in aseptic
     areas.

16. Enlist the steps of sugar coating.

17. Enlist the additives of tablets formulation.

18. Concept of transdermal drug delivery systems.

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QP Code: 4013

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JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - May 2012

Subject: Pharmacology-II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

| I. | LONG ESSAY (Answer any two questions) | 2x15=30 Marks |

1. a) Explain the life cycle of malarial parasites and mention the sites of action of anti malarial drugs. (4+4)
    b) Explain the mechanism of action, therapeutic uses and adverse effects of fluoroquinolones. (3+2+2)
2. a) Explain the mechanism of action, therapeutic uses and adverse effects of alkylating agents. (3+3+2+2)
    b) Define immunostimulants. Explain the role of interferons as immunostimulants. (1+4)
3. a) Define gene therapy. Explain about the target diseases and applications of gene therapy. (2+4+4)
    b) Describe gene mapping. (5)

| II. | SHORT ESSAY (Answer any six questions) | 6x5=30 Marks |

4. Write the pharmacological actions of vasopressin.
5. Mechanism of action and therapeutic uses of streptokinase.
6. Write a note on emetics.
7. H_2 receptor antagonists.
8. Describe the chemotherapy of tuberculosis.
9. Classify amoebicides. Write the mechanism of action and contraindications of metronidazole. (2+2+1)
10. Explain the structure and functions of human chromosomes. (3+2)
11. Enumerate the applications of bioassay.

| III. | SHORT ANSWERS (Answer any five questions) | 5x2=10 Marks |

12. Mechanism of action of griseofulvin.
13. Define subacute toxicity.
14. Mention the antibiotics that inhibit cell wall synthesis.
15. Phosphoinositol triphosphate pathway.
16. Mention the adverse effects of rifampicin.
17. What is posttranslational modification?
18. Mention the therapeutic uses of aspirin.

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JSS UNIVERSITY, MYSORE
Third Year Pharm.D Examination - May 2012
Subject: Pharmaceutical Analysis

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. a) Write in detail about the factors affecting fluorescence intensity.
   b) Explain the construction and functioning of calomel electrode.   (10+5)

2. a) Enumerate the types of detectors used in GC. Explain how FID works.
   b) Classify the types of columns used in HPLC.   (10+5)

3. a) Explain the types of conductometric titration curves.
   b) Write the principle involved in ion exchange chromatography.   (10+5)

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. What are the various types of molecular vibrations?

5. Explain in detail about sample preparation for IR spectroscopy.

6. Write the principle involved in flame photometry.

7. Enumerate the column efficiency parameters.

8. What is the difference between normal and reversed phases in HPLC?

9. Write the composition of Karl Fisher reagent.

10. What is meant by overtone or combination bands?

11. List the types of electrophoresis techniques.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Define NMR spectroscopy.

13. What is meant by functional group and finger print region in an IR spectrum?

14. Define the term validation.

15. Write the applications of flame emission spectroscopy.

16. What is meant by quenching of fluorescence?

17. List the types of Whatman filter papers and their applications in PC.

18. What is the difference between precision and accuracy?

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QP Code: 4015

JSS UNIVERSITY, MYSORE

Third Year Pharm. D Examination - May 2012

Subject: Pharmacotherapeutics-II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any two questions)   2x15=30 Marks

1. A 55 years old smoker with a history of chronic obstructive lung disease presents in medical emergency with difficulty in breathing and is also unable to speak. Which of the following drugs is drug of choice for relieving patient's symptoms? Justify your option and also give preferred route of administration.
    a) i) Mast cell stabilizers   ii) Leukotriene receptor antagonist
        iii) Salbutamol   iv) Prednisone   v) Acetylcysteine.
    b) Name bronchodilators and give their mechanism of action.
    c) What is the role of mast cell stabilizers and leukotriene antagonists in management of bronchial asthma?

2. Soni is 67 year old; is obese; and has type 2 diabetes mellitus, diabetic nephropathy, renal insufficiency and hypertension. She works as a seamstress. She was active as a younger woman, played several sports and skied. She injured right knee in a skiing accident. She complains of hand pain and stiffness and knee pain and stiffness. Morning stiffness lasts less than 30 minutes. No crepitus is heard on joint manipulation.
    a) Recommend suitable disease modifying antirheumatic drug therapy and dosage regimen for this patient.
    b) Is the patient suitable candidate for non-pharmacological treatment? Justify.
    c) What counseling point do you provide to this patient on disease and lifestyle modifications?

3. A 69 year old man who weighs 100 kg (212 lb) and is 60 inch tall presents to his physician after a transatlantic flight complaining of pain and swelling of is right lower extremity. The patient had total knee arthroplasty 2 weeks before his travel. His medical history reveals that he has an ejection fraction of 15%, he is in remission for non-Hodgkin lymphoma and he had a previous myocardial infarction. His mother, father and sister are dead as a result of stroke, pulmonary embolism and childbirth respectively. Diagnose and recommend suitable drug therapy and dosage regimen for this patient. What counseling points do you provide on disease and lifestyle modifications?

II. SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4. Compare and contrast the symptoms of acute and chronic renal failure.
5. Dosage regimen for treatment of urinary tract infection in adults.
6. Diagnosis and clinical evaluation of osteoarthritis.

PTO

7. Pathogens involved in causing fungal infection.
8. Drug of choice for respiratory tract infections.
9. Management of psoriasis.
10. Chemotherapy of breast cancer.
11. Schizophrenia and extrapyramidal side effects.

III. SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. Name some opportunistic infections in HIV.
13. Drugs for treatment of eczema.
14. Name two drugs which causes systemic lupus erythematosus.
15. Types of renal dialysis.
16. Types of leukemia.
17. Disadvantages of cancer chemotherapy.
18. Aetiology of meningitis.

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QP Code: 4016

JSS UNIVERSITY, MYSORE
Third Year Pharm.D Examination - May 2012
Subject: Pharmaceutical Jurisprudence

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1.   Explain the procedure to obtain the license for manufacture of schedule C and C1 drugs.
2.   Describe the salient features of Drug and Magic Remedies Act.
3.   Describe the salient features of Drug Price Control Order and New Drug Policy of Govt. of India.

II.   **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4.   Highlight on labeling of ophthalmic preparation.
5.   Constitution & functions of Pharmacy Council of India.
6.   Write the Pharmacist oath.
7.   Give the general labeling requirements of allopathic drugs under the D & C Act.
8.   Give a brief account of the different types of license which can be issued for the sale of drugs under the Drugs and Cosmetic Act 1940.
9.   Mention the offence and penalties of poppy straw and opium under the Narcotic Substances Act.
10. Write note on Hathi Committee.
11. Objectives of Institutional Animal Ethics Committee.

III.   **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Write a note on patentable inventions.
13. Note on non prescription products.
14. Objectives of Pharmaceutical Policy 2002.
15. Drug abuse.
16. Functions of state pharmacy councils.
17. Constitution of Drug Consultative Committee.
18. Non bonded laboratory.

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QP Code: 4017

JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - May 2012

Subject: Medicinal Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours
Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)
2x15=30 Marks

1. Classify antineoplastic agents with examples. Write the structure of one drug in each class. Write a note on alkylating agents.
(9+3+3)

2. Define and classify antimalarial agents with examples. Write a note on quinolines. Explain the synthesis of pamaquine.
(9+3+3)

3. Define and classify antibiotics with examples. Write about beta lactum antibiotics. Explain synthesis of chloramphenicol.
(9+3+3)

II.   SHORT ESSAY (Answer any six questions)
6x5=30 Marks

4. Write a note on synergistic action of cotrimoxazole.
5. Classify diuretics with examples. Write the synthesis of frusemide.
6. Write the synthesis of ciprofloxacin and trimethoprim.
7. What are hypoglycemic agents? Write the synthesis of tolbutamide.
8. Describe the SAR of quinolone antibacterial agents.
9. Write a note antifungal agents.
10. What are local anti-infective agents? Write a note on nitrofurans.
11. Write the synthesis of sulphacetamide and acetazolamide.

III. SHORT ANSWERS (Answer any five questions)
5x2=10 Marks

12. Write the structure and medicinal uses of lidocaine and fluorouracil.
13. Write the chemical structure of any two estrogens.
14. Synthesis of INH.
15. Give the structure of any two antianginal drugs.
16. Mechanism of action of sulphonamides.
17. Write the structure and uses of clonidine and methyldopa.
18. Write the structure and uses of prednisolone and beclomethasone.

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JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - May 2012

Subject: Pharmaceutical Formulations

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   2x15=30 Marks

1.   Describe the sugar coating process of tablets. Add a note on tablet
     coating defects.   (8+7)

2.   Explain the concept of controlled drug delivery systems with suitable
     examples.   (1+8+6)

3.   Explain the production facilities, procedures and controls for the
     formulation of injectables. Write a note on water for injection.   (10+5)

II.   SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4.   Write the advantages and disadvantages of tablets.

5.   Explain the quality control tests for tablets.

6.   Describe the process of preparation of soft gelatin capsules.

7.   Classify pharmaceutical dosage forms with examples.

8.   Explain the formulation considerations for liquid orals.

9.   Write the instability problems of emulsions.

10. Write the advantages and disadvantages of injectables.

11. Write the principle and procedure of pyrogen test.

III. SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. What is the significance of isotonicity adjustment in parenterals?

13. Enlist the additives used in the preparation of gelatin capsule.

14. Give the advantages of liquid orals.

15. Define orange peel and mottling.

16. Give the advantages of vaginal drug delivery systems.

17. Mention the advantages of glass for parenteral packaging.

18. Types of ointment bases.

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JSS UNIVERSITY, MYSORE
Third Year Pharm.D Examination - May 2013
Subject: Pharmacology-II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any two questions)**   **2x15=30 Marks**

1. a) Classify anticoagulants. Explain the pharmacological action, adverse   (3+7)
       effects and therapeutic uses of heparin.

    b) Write a note on plasma expanders.   (5)

2. a) Classify β lactam antibiotics. Describe the mechanism of action,   (3+7)
       adverse effects and uses of penicillins.

    b) Write a note on cotrimoxazole.   (5)

3. a) Explain cell signaling and signal transduction pathways.   (10)

    b) Write the difference between prokaryotic and eukaryotic chromosome   (5)
       structure.

II. **SHORT ESSAY (Answer any six questions)**   **6x5=30 Marks**

4. Write a short note on platelet aggregation.

5. Write the pharmacology of vasopressin.

6. Write a short note on proton pump inhibitors.

7. Major toxicity of aminoglycosides.

8. Write the mechanism of action of tacrolimus.

9. Write a note on screening methods.

10. Write a note on DNA replication.

11. Applications of gene therapy.

III. **SHORT ANSWERS (Answer any five questions)**   **5x2=10 Marks**

12. Write any two differences between laxatives and purgatives.

13. Name any two potassium sparing diuretics.

14. What is DOTS therapy?

15. Define acute and sub-acute toxicity.

16. Define chromosome.

17. Define tumor suppressor gene.

18. Define bioassay.

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JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - May 2013
Subject: Pharmaceutical Analysis

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. Write an essay on paper chromatography explaining the principle, stationary phase, mobile phase, development of chromatogram, visualization of spot and application.
2. Define Beer's law and Lambert's law and derive the combined Beer-Lambert law equation. What are the deviations from Beer's Law? Add a note on the application of UV spectrophotmetry to pharmaceutical analysis.
3. Give an account on the theory & principle and instrumentation of atomic absorption spectrophometry.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Explain the calibration of UV spectrophotometer.
5. Explain the construction and working of any three detectors used in gas chromatography.
6. Write a note on the principle, technique and application of gel permeation chromatography.
7. Explain the following:
   a) Determination of end point from potentiometric titration curve.
   b) Construction and working of calomel electrodes.
8. What is amperometric titration? Explain the applications with example and their titration curves.
9. Give an account on the origin of fluorescence and phosphorescence based on energy diagram.
10. Briefly explain the principles of NMR spectrophotometry and its applications.
11. What are monochromators? Give examples and explain the working of any one of them.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Define bathochromic and hypsochromic shift.
13. What is frontal analysis?
14. How will you visualize the spot in TLC study of a compound which does not absorb light, does not have fluorescent property and does not give colour with iodine vapour?
15. Name the analytical instrument used for:
    a) The determination of molecular weight of small molecules.
    b) The determination of molecular weight of polymers.
    c) Determination of lead in blood sample.
16. What is parent peak and base peak in mass spectrum?
17. Define wave length.
18. Why is fluorimetry more sensitive and selective than UV spectrophotometry?

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JSS UNIVERSITY, MYSORE

Third Year Pharm. D Examination - May 2013

Subject: Pharmacotherapeutics-II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. Mrs. Y, is a 58 year old woman, with a history of asthma and diabetes. She presents with a 48 hour history of cough, fever and wheezing. On exam, her vital signs are: blood pressure 154/78 mm Hg, pulse 94 beats per minute, respirations 24 breaths per minute, and temperature 99.4°. A chest X-ray reveals a small infiltrate in the right lower lobe, and a diagnosis of community acquired pneumonia is made.
    a) What are the different types of pneumonia?
    b) Explain the aetiology and clinical presentation of pneumonia.
    c) What are the preferred medications for the treatment of pneumonia in this patient?
    d) What are the risk factors for developing pneumonia?

2. Mrs. Y, a 60yr old woman, suffers from daily joint stiffness and pain with minimal exertion. X-ray of the knees, hips and lower back revealed signs that are consistent with a diagnosis of osteoarthritis. She has taken diclofenac 50 mg three times daily for the past two years. She was admitted in the hospital following an episode of vomiting.
    a) Is NSAID use related to ulcer and anemia in this case?
    b) What are the adverse effects associated with the use of NSAIDs?
    c) Explain the therapeutic options to control her arthritic pain.
    d) What are the lifestyle modifications required in this case?

3. A 35 year old female presented with fever that has lasted for three days, nausea and pain in her back. She complains of frequency of urination, especially at night, and painful, burning sensation while urinating. She has a history of recurrent urinary tract infections and of kidney stones. Her blood pressure was found to be elevated at 142/90 mm Hg. Her urine examination confirmed the presence of UTI.
    a) Explain the aetiology of UTI.
    b) Explain the diagnosis and clinical presentation of UTI.
    c) What are the therapeutic options for the management of UTI?
    d) What are the precautions to be taken to prevent UTIs?

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Describe the pharmacotherapy of rheumatoid arthritis.
5. Explain the pathogenesis of acquired immune deficiency syndrome.
6. Explain the pathogenesis of malaria.

7. Explain the management of acute renal failure.
8. Describe the symptoms and management of gonorrhea.
9. Explain the pharmacotherapy of meningitis.
10. Explain the types of leukemia.
11. Explain the pharmacotherapy of psoriasis.

III.   **SHORT ANSWERS (Answer any five questions)**   **5x2=10 Marks**

12. Mention the aetiology of SLE.
13. Clinical presentation of urinary tract infections.
14. Enlist any five major adverse effects of cancer chemotherapeutic agents.
15. What are the different types of viral infections?
16. Enlist the drugs used in managing gout
17. Mention the drugs of choice for the treatment of impetigo?
18. Mention any five opportunistic infections.

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JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - May 2013

Subject: Pharmaceutical Jurisprudence

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. Explain the salient features of drug price control order. Describe new drug policy of Govt. of India.
2. Write the constitution and functions of PCI.
3. Describe the classes of drugs prohibited to be imported. Add a note on import of drugs under license.

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Write in brief on the exempted advertisement under the Drugs and Magic Remedies Act.
5. What are the duties and responsibilities of government analyst?
6. Enumerate the requirements of a non bonded laboratory.
7. Mention the types of patents and its applications.
8. Outline the ethics that a pharmacist should follow in relation to medical profession and to his job.
9. Explain the constitution and functions of DTAB.
10. Give an account of prescription products.
11. Write a note on psychotropic substances.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Write on schedule N.
13. Define new drug.
14. Write the general labeling requirement of a drug.
15. What is drug abuse?
16. Define opium and opium derivatives.
17. Write briefly on Hathi committee.
18. Objectives of institutional animal ethics committee.

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JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - May 2013

Subject: Medicinal Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any two questions)   2x15=30 Marks

1. Define & classify diuretics with suitable examples. Write a note on loop diuretics and outline the synthesis of acetazolamide and furosemide.

2. What are beta lactam antibiotics? Describe the chemistry & SAR of tetracyclines. Outline the synthesis of chloramphenicol.

3. Define and classify antihypertensive agents with suitable examples. Write a note on calcium channel blockers and outline the synthesis of propranalol.

II. SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4. Write a note on betalactamase inhibitors.
5. Write the development & SAR of sulfonylureas as hypoglycemic agents. Outline the synthesis of tolbutamide.
6. Classify antineoplastic agents with relevant examples. Write the mechanism of action of alkylating agents and antimetabolites.
7. Write a note on antitubercular antibiotics.
8. Write a note on prodrug concept and combinatorial chemistry in drug discovery.
9. Write the structure of any four urinary tract antiinfective drugs. Outline the synthesis of ciprofloxacin.
10. Explain with suitable examples:
    a) Cationic surfactants as antiinfectives.
    b) Nitrofurans as local antiinfective agents.
11. Explain the SAR among antibacterial sulphonamides. Outline the synthesis of sulfacetamide.

III. SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. Outline the synthesis of pamaquine.
13. Write the mechanism of action of quinoline antimalarials.
14. Write the structure and use of betamethazone and spironolactone.
15. Outline the synthesis of trimethoprim.
16. Name any two antithyroid drugs and give their structures.
17. Name any two macrolide antibiotics and mention their uses.
18. Give the chemical structure and uses of any one plant product in cancer therapy.

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JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - May 2013

Subject: Pharmaceutical Formulations

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   2x15=30 Marks

1.   Describe different methods of preparation of ointments with examples.
2.   Describe formulation of parenteral products. Explain any two methods of   (7+8)
     sterilization of parenteral products.
3.   Give the formulation approaches for trans dermal drug delivery system.

II.   SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4.   Explain evaluation of tablets.
5.   Explain steps involved in sugar coating.
6.   Write on instabilities in emulsions.
7.   Mention differences between flocculated and deflocculated suspensions.
8.   Explain formulation of eye drops.
9.   Explain quality control tests for the parenteral products.
10. Explain factors affecting absorption through skin.
11. Explain preparation of ophthalmic inserts.

III.   SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. What are enteric coated tablets?
13. Define bloom strength.
14. What are the different types of emulsions?
15. Give two examples of suspending agents.
16. What are mixtures? Give two examples of mixtures.
17. What are contact lens products?
18. Define liposomes.

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QP Code: 4013

JSS UNIVERSITY, MYSORE
Third Year Pharm.D Examination - November 2012
Subject: Pharmacology-II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) Classify diuretics. Explain the pharmacology of potassium sparing (3+5)
       diuretics.
    b) Explain the mechanism of action and therapeutic uses of proton pump (3+4)
       inhibitors.

2. a) Explain the mechanism of action, therapeutic uses, adverse effects (3+3+2+2)
       and contraindications of aminoglycoside antibiotics.
    b) Write the therapeutic uses of antiplatelet drugs.   (5)

3. a) What is a recombinant DNA? Explain the principles and applications (2+4+4)
       of rDNA technology.
    b) Describe the signal transduction pathways involving MAP kinase and (5)
       Janus kinase.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Classify sulphonamides and write its mechanism of action.   (2+3)
5.   Write a note on carminatives.
6.   Write the therapeutic uses and adverse effects of macrolide antibiotics. (3+2)
7.   Explain briefly chronic toxicity studies.
8.   Classify anti viral drugs. Explain the mechanism of action of nucleoside (3+2)
     reverse transcriptase inhibitors (NRTIS).
9.   Write a note on biosensors.
10. Explain the chemotherapy of giardiasis.
11. Explain the role of histones in gene expression.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Name the vitamin K analogues used as anticoagulants.
13. Mention the drugs used for the treatment of neurogenic diabetes
     inspidus.
14. Classify immunesuppressants.
15. Write the functions of ribosomes.
16. Limitations of bioassay.
17. Define single nucleotide polymorphism.
18. Gray baby syndrome.

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QP Code: 4014

JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - November 2012

Subject: Pharmaceutical Analysis

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours | Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)** 2x15=30 Marks

1. Write an essay on ion exchange chromatography covering the principle, types of ion exchange resins, factors affecting ion exchange, techniques and applications.

2. With a neat diagram explain the construction and working of the following:
    a) Double beam UV-visible spectrophotometer.   (8+7)
    b) Detectors used in IR spectrophotometer.

3. Give and account on the construction and working of magnetic defection mass spectrometer. Add a note on application of mass spectrometer.

II. **SHORT ESSAY (Answer any SIX questions)** 6x5=30 Marks

4. Give a brief account on the installation qualification, operational qualification and performance qualification of equipment.

5. Explain the construction and working of any three detectors used in HPLC.

6. Write a note on the principle, technique and application of affinity chromatography.

7. Explain the principle and technique of dead stop end point method based on Karl Fisher titration.

8. Explain the construction and working of pH meter.

9. Explain the sampling techniques for IR study of solids and liquids.

10. Give an account on the structural and physico – chemical factors affecting fluorescence.

11. Explain the types of interference in atomic absorption spectrophotometry and means to prevent interference.

III. **SHORT ANSWERS (Answer any FIVE questions)** 5x2=10 Marks

12. Explain chromophore and auxochrome with examples.

13. What is adsorption chromatography?

14. What is the need for derivatisation technique in gas chromatography? Give one example.

15. What is saturation of chamber in paper chromatography?

16. What is temperature programming in GC? Write its application.

17. Define spin – spin coupling.

18. Define frequency with respect to electromagnetic radiation.

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QP Code: 4015

JSS UNIVERSITY, MYSORE
Third Year Pharm. D Examination - November 2012
Subject: Pharmacotherapeutics-II

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Mr Chatterjee is a 50 years old AIDS patient. Currently he is under treatment with regimen 1 (zidovudine + lamivudine + nevirapine). During his visit after one month of starting ART, he complained of severe weakness. On laboratory investigation it is found that his haemoglobin level is 5 g/dl. He is reluctant to continue medications.
    a) Justify the treatment offered to Mr Chatterjee. If justified, mention the dosing schedule. If not what is the problem with this regimen.
    b) Whether the same treatment is advisable after the first visit? Justify.

2. A 30 year old woman with history of recurrent infections was recently treated for an E.coli urinary tract infection (UTI) with ampicillin 500 mg four times a day for 10 days. Two months later, she returned to hospital with another UTI.
    a) Is there a necessity of culture and sensitivity testing of urine sample?
    b) Pending culture and sensitivity result, what therapy can be instituted for this patient?
    c) What other drugs could be useful? Mention their name, dose and duration of treatment.

3. A 10 year old boy has been diagnosed with acute lymphoblastic leukemia. At diagnosis, the boy's white blood cell count was 80,000/mm^3. There was no mediastinal mass on chest x-ray, no leukemia cells found in cerebrospinal fluid. He was started on remission induction chemotherapy with prednisone, vincristine and L-asparaginase.
    a) What is the goal of remission induction chemotherapy?
    b) What drugs are currently used for remission induction?
    a) How effective are these agents in inducing remission and how long will it take?

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. How is multi drug resistant TB treated?
5. What are the symptoms and diagnostic methods of malaria?
6. Enlist the drugs with dose for treating opportunistic infections.

PTO

7. Write on need of appropriate use of antibiotics.

8. Mention the chemotherapy principle in breast cancer.

9. Explain the difference between osteoarthritis and rheumatoid arthritis.

10. How are chemotherapy induced nausea and vomiting managed?

11. Explain the principle of renal dialysis. When is it indicated?

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Mention two antifungal drugs with their dose.

13. Mention the clinical symptoms of pulmonary tuberculosis.

14. Write a brief note on importance of CD_4 counts.

15. Name the opportunistic infections.

16. Name two drugs that are likely to cause renal failure. What are their indications?

17. Name two drugs with dose used in osteoarthritis.

18. Name two chemotherapeutic agents with their use.

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QP Code: 4016

JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - November 2012

Subject: Pharmaceutical Jurisprudence

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**

2x15=30 Marks

1. Explain the conditions for grant of licence and conditions of licence for the manufacture of drugs under schedule M.
2. What are the qualifications for the appointment of drug inspectors and explain the duties of drug inspectors.
3. What are the offences and penalties under narcotic and psychotropic substances Act and Rules? Describe the procedure for searches, seizures and arrests.

II. **SHORT ESSAY (Answer any SIX questions)**

6x5=30 Marks

4. What are the prohibited advertisement under Drugs and Magic Remedies?
5. How are retail prices of formulations calculated as per DPC order 1987?
6. What are the constitutions of DTAB?
7. What are the salient features of Prevention of Cruelty to Animal Act?
8. How are the First and Subsequent Registers prepared and maintained according to the Pharmacy Act?
9. Write a note on Schedule N.
10. Write a note on patentable and non patentable inventions.
11. Write a note on Hathi and Mudaliar committees.

III. **SHORT ANSWERS (Answer any FIVE questions)**

5x2=10 Marks

12. Mention the offences and penalties opium under the MTPA.
13. Pharmacists oath.
14. Registration of pharmacists.
15. Define retail and ceiling price.
16. List of permitted colors in cosmetics.
17. Diagnostic aids.
18. Bonded laboratory.

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29

QP Code: 4017

JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - November 2012

Subject: Medicinal Chemistry

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)

2x15=30 Marks

1. Define and classify antibiotics with examples. Write the structure of any (9+3+3)
    four cephalosporins. Explain the process of degradation of penicillins.

2. Define and classify antineoplastic agents with examples. Write a note on (9+3+3)
    alkylating agents. Explain the mechanism of action of methotrexate and
    flurouracil.

3. Define and classify antimalarials with examples. Write the structure of (9+3+3)
    one drug in each class. Explain SAR and mechanism of action of
    quinoline antimalarials.

II. SHORT ESSAY (Answer any SIX questions)

6x5=30 Marks

4. Explain the SAR and mechanism of action of sulphonamides.

5. Classify antiarrythmic agents with examples. Explain the mechanism of
    action of calcium channel blockers.

6. What are urinary tract anti-infectives? Write synthesis of ciprofloxacin.

7. Define and classify anticoagulants. Explain the mechanism of action of
    warfarin.

8. Define and classify diuretics. Write synthesis of acetazolamide.

9. Write a note on prodrug.

10. What are antihypertensive agents? Write the synthesis of propranolol.

11. Write the synthesis of pamaquine and sulphacetamide

III. SHORT ANSWERS (Answer any FIVE questions)

5x2=10 Marks

12. Write the structure and medicinal uses of trimethoprim.

13. Write the chemical structure of any two antiprotozoal agents.

14. Write the synthesis of INH.

15. Give the structure of any two anthelmintic agents.

16. Mechanism of action of streptomycin.

17. Write the structure and uses of metformin and repaglinide.

18. Write the structure and uses of tolnaftate and benzalkonium chloride.

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QP Code: 4018

JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - November 2012

Subject: Pharmaceutical Formulations

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   **2x15=30 Marks**

1. Define tablets. Explain the quality control tests for tablets giving principle   (1+12+2)
    and apparatus involved and give limits for each test.

2. What are transdermal drug delivery systems? Explain the advantages   (1+6+8)
    and disadvantages. Explain the different types of transdermal systems.

3. Define and classify parenterals. Explain in detail the formulation of   (1+2+12)
    parenteral products.

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4. Write the preparation of empty hard gelatin capsules.

5. Write a note on nasal drug delivery systems.

6. What is emulsion? Write the tests for identification of emulsions.

7. Explain the quality control tests for capsules.

8. Add a note on stability of suspensions.

9. Explain the wet granulation method for tablet preparation.

10. Differentiate between hard and soft gelatin capsules.

11. Explain the containers and closures used for packaging parenterals.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Name two enteric coating polymers.

13. Define pyrogen and sterilization.

14. Give four advantages of ointments.

15. Name the methods for filling of liquid orals.

16. Write a note on implants.

17. What is base adsorption and minim/gram?

18. Give the classification of semi-solids.

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JSS UNIVERSITY, MYSORE

Third Year Pharm.D Examination - November 2013

Subject: Pharmacology-II

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. a) Classify diuretics with examples.   Write the mechanism, adverse   (7+3)
       effects and uses of loop diuretics.

    b) Write a short note on anti-diuretics.   (5)

2. a) Define cancer. Classify anti-cancer drugs. Explain the mechanism of (2+3+5)
       action and adverse effects of folate antagonists.

    b) Write the WHO treatment schedule for tuberculosis.   (5)

3. a) Explain in detail about the principles of r-DNA technology and its   (10)
       applications.

    b) Applications and limitation of bioassay methods.   (5)

II. **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Short notes on thrombolytics.

5. Write the mechanism of action and uses of 5HT antagonist as anti-
    emetics.

6. Define chemotherapy. Explain the mechanism of action of
    chloramphenicol.

7. Explain the pharmacology and uses of zidovudine.

8. Write a note on cyclophosphamide.

9. Differentiate acute, sub-acute and chronic toxicity studies.

10. Short note on cell cycle.

11. Short note on mechanism of protein synthesis.

III. **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. Erythropoietin.

13. Name any four macrolide antibiotics.

14. Suicidal inhibitors.

15. Adverse effects of thiazide diuretics.

16. Types of bioassay.

17. Oncogenes.

18. Name any two appetite stimulants.

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JSS UNIVERSITY, MYSORE
Third Year Pharm.D Examination - November 2013
Subject: Pharmaceutical Analysis

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any two questions)   2x15=30 Marks

1. Write an essay on thin layer chromatography covering the principle, stationary phase, mobile phase, development of chromatogram, visualization of spot and application.   (3+2+2+3+2+3)

2. With a neat diagram explain the construction and working of the   (8+7)
    following:-
    a) IR spectrophotometer.
    b) Detectors used in UV spectrophotometer.

3. Give an account on the principle, technique, titration curves of various types of titrations and applications of conductometric titration.

II.   SHORT ESSAY (Answer any six questions)   6x5=30 Marks

4. Explain the calibration of HPLC.

5. Explain the following terms with respect to chromatography:-
    a) Capacity factor.
    b) Resolution.
    c) Theoretical plates.
    d) Reverse phase chromatography.
    e) Retention time.

6. Give a brief account on the theory and principles of mass spectrometry.

7. Write a brief note on the principle, technique and use of electrophoresis.

8. What are reference electrodes and indicator electrodes? Give examples. Explain the construction and working of standard hydrogen electrode.

9. What is quenching of fluorescence? Explain the types of quenching and add a brief note on the applications of fluorimetry.

10. Explain various types of electronic transition with examples and explain the terms absorption, absorptivity and absorption maximum.

11. Give an account on the different vibrational modes in poly atomic molecules and the conditions required for the absorption of IR radiation by a molecule.

III.   SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. Define validation.

13. What is overtone with respect to IR spectrophotometry?

14. What is partition chromatography?

15. What is the main difference between TLC and HPTLC?

16. What is binary gradient elution in HPLC? What is its application?

17. Define chemical shift.

18. Define wave number.

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JSS UNIVERSITY, MYSORE

Third Year Pharm. D Examination - November 2013

Subject: Pharmacotherapeutics-II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. A 44 year old man is admitted in the hospital with complaints of headache, fever, shivering, arthralgia and vomiting. A blood smear is taken and examined, which revealed 4 parasites per 1000 red blood cells, with rings and that some of the infected red blood cells were enlarged and deformed. The patient is diagnosed to have malaria.
    a) Explain the aetiology of malaria.
    b) What treatment approach would you recommend, based on this clinical history?
    c) Explain the clinical presentation and diagnosis of malaria?
    d) Should this patient have taken preventive measures against malaria?

2. A 35 year old man presents with complaints of feet swelling, fatigue, nausea and vomiting. He has also noticed a decrease in urine output (300ml/24hrs), and his BUN was 54mg/dl and potassium levels were elevated (7 mEq/L). He was diagnosed to have acute renal failure and hyperkalemia.
    a) List signs and symptoms of acute renal failure.
    b) Identify the goals of therapy for treatment of acute renal failure.
    c) What are the potential therapies for hyperkalemia?

3. A 63 year old female presents with two hours of morning stiffness, swelling at hands and wrists, right shoulder pain and bilateral knee swelling. Her lab reports show a positive rheumatoid factor and ESR 55mm/hr and she was diagnosed of having rheumatoid arthritis.
    a) Explain the role of DMARDs in managing rheumatoid arthritis.
    b) What are the other therapeutic options for the management of rheumatoid arthritis?
    c) What is the role of methotrexate in rheumatoid arthritis?
    d) What are the lifestyle modifications required for this patient?

II.   **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4. Explain the basic principles of cancer chemotherapy.
5. Explain the pharmacotherapy of gout.
6. Describe the aetiology and symptoms of acute renal failure.
7. Describe the management of acquired immune deficiency syndrome.
8. Explain the treatment of scabies.
9. Explain pathogenesis of rheumatoid arthritis.
10. Describe the treatment of breast cancer.
11. Write a note on opportunistic infections.

III. SHORT ANSWERS (Answer any five questions)   5x2=10 Marks

12. Mention the aetiology of septicemia.

13. Enlist the types of leukemia.

14. Define chronic renal failure.

15. Signs and symptoms of endocarditis.

16. Clinical presentation of tuberculosis.

17. Clinical types of psoriasis.

18. Name the different types of lower respiratory tract infections.

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6

QP Code: 4014

JSS UNIVERSITY, MYSORE
Third Year Pharm.D Examination - October 2011
Subject: Pharmaceutical Analysis

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. a) Explain the instrumentation and functioning of an atomic absorption   (10)
        spectrophotometer.
    b) Write the advantages of amperometry over potentiometry.   (5)
2. a) Write the principle involved in the separation by electrophoresis, list   (10)
        the types of electrophoresis.
    b) What are the various modes of molecular vibrations?   (5)
3. a) Write in detail the types of elution in column chromatography.   (10)
    b) Write the detection methods employed in HPTLC.   (5)

II.   **SHORT ESSAY (Answer any six questions)**   6x5=30 Marks

4.   Enumerate the factors affecting ion exchange chromatography.
5.   Write briefly about derivatisation in GC.
6.   Explain briefly the instrumentation of a spectroflurimeter.
7.   How are gases, solid and liquid samples prepared for IR spectroscopy?
8.   Explain the construction and functioning of a glass electrode.
9.   How do reference electrodes differ from indicator electrodes?
10. What is meant by Fermi reasonance?
11. What is meant by upfield and downfield in NMR spectroscopy?

III.   **SHORT ANSWERS (Answer any five questions)**   5x2=10 Marks

12. List the types of electronic transitions possible in spectroscopy.
13. How is the property of quenching of fluorescence used for visualization of
     spots in PC and TLC?
14. List the radiation sources used in IR, UV / visible spectrometers.
15. List the types of silica gel used in TLC with their applications.
16. What is the difference between calibration and validation of an
     instrument?
17. What acts as the stationery phase in PC?
18. How is HETP calculated?

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QP Code: 4015

JSS UNIVERSITY, MYSORE

Third Year Pharm. D Examination - October 2011

Subject: Pharmacotherapeutics-II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any two questions)**   2x15=30 Marks

1. A 50-year-old man has noted passing darker urine for the past one week. On physical examination there are no abnormal findings. A urinalysis shows pH 5.5, specific gravity 1.013, 2+blood, no protein, and no glucose. Urine cytology is performed and there are atypical uroepithelial cells seen. A urologist performs a cystoscopy, but no mucosal lesions are noted. He has a 60 back year history of smoking cigarettes. Which of the following is the most likely diagnosis? Write a detailed note on the diagnosed disease.
   a) Adenocarcinoma of prostate.
   b) Urothelial carcinoma of renal pelvis.
   c) Acute interstitial nephritis.
   d) Nodular glomerulosclerosis.
   e) Squamous cell carcinoma of penis.

2. AQ, a 69 year old man, was admitted to hospital after an episode of coffee ground vomit and melaena. His hemoglobin concentration was 10g/ dL with an MCV of 78 fL. Investigation revealed a gastric ulcer that stopped bleeding after endoscopic treatment with adrenaline. Biopsy confirmed the benign nature of the ulcer which was positive for H. pylori. AQ was generally in good health but took ibuprofen 400 mg on as required basis for general aches and pains.

   Question:
   a) Were any risk factors present for NSAID induced ulcers?
   b) What treatment should he receive to heal the ulcer and prevent any recurrence?

3. Mr. PR is a 62 year old retired dock worker whose medical history is COPD and chronic renal failure. He has recently started a pulmonary rehabilitation programme and asks for advice on the best way to give up smoking. He currently smokes around 20 cigarettes a day and has been smoking since he was 20.
   a) Why is it important for Mr. PR to give up smoking?
   b) What should be discussed when helping someone stop smoking?
   c) What non-pharmacological support will help Mr. PR in giving up?
   d) Which smoking cessation product should be chosen?
   e) Is this choice safe in someone with cardiac disease?

PTO

II. **SHORT ESSAY (Answer any six questions)**   **6x5=30 Marks**

   4. Management of acute renal failure.
   5. Dosage regimen for treatment of tuberculosis in adults.
   6. Treatment of psoriasis.
   7. Management of chemotherapy induced nausea and emesis.
   8. Signs and symptoms of meningitis and septicemia.
   9. Dosage regimen for treatment of complicated urinary tract infections.
   10. Rheumatoid arthritis and heart attack risk.
   11. Therapeutic management of protozoal infections.

III. **SHORT ANSWERS (Answer any five questions)**   **5x2=10 Marks**

   12. List out any two complications of inappropriate administration of antimicrobials.
   13. Name four ranges of infections caused by salmonellae.
   14. Mention three laboratory techniques to diagnose gonorrhea.
   15. Mention two drugs and their doses used in the management of osteoarthritis.
   16. What are the symptoms and signs impetigo?
   17. Mention names and doses of any four antifungal drugs.
   18. Name two drugs which induce renal disorders.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2011

Subject: Pharmacotherapeutics-III

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   **2x15=30 Marks**

1. a) Describe the pathophysiology of Alzheimer's disease.   (6)
    b) Describe the pharmacotherapy for the management of cognitive and   (9)
       non-cognitive symptoms of Alzheimer' disease.
2. a) Describe the etiology, risk factors, signs and symptoms of peptic ulcer.   (6)
    b) Write the diagnostic methods of H pylori infection.
    c) Explain the pharmacotherapy and non pharmacotherapy of peptic   (3)
       ulcer disease.   (6)
3. a) Explain the pathophysiology of anxiety and schizophrenia.   (6)
    b) Write a note on the drug treatment in insomnia.   (6)
    c) Write the adverse effects of benzodiazepines.   (3)

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4. Describe the types of jaundice.
5. Write a note on management of inflammatory bowel disease.
6. Explain the management of migraine headache.
7. Write the pathophysiology of Parkinson's disease.
8. Write a note on drug induced blood disorders.
9. Explain the role of heparins and heparinoids in the treatment of venous
    thromboembolism.
10. Explain the therapeutic management of status epilepticus.
11. Explain the role of evidence based medicine for the effective
    pharmacotherapy.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Write a short note on different stages of sleep.
13. Name the types and nature of viruses causing hepatitis.
14. Classify different types of seizures.
15. List the different forms of ulcerative colitis and Crohn's disease.
16. Classify drugs used in neuralgia.
17. Mention the etiology of viral hepatitis.
18. List four drugs causing liver disorder.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2011

Subject: HOSPITAL PHARMACY

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   Explain the various methods of drug distribution to inpatients in a hospital.
2.   Explain in detail the central sterile supply services and role of the hospital pharmacist in the preparation and dispensing of IV admixtures.
3.   Describe in detail professional relations and practices of a hospital pharmacist.

II.   **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Explain the composition and objectives of a hospital's pharmacy and therapeutic committee.
5.   Explain the various sections of a hospital budget in brief.
6.   Write a short note on the purchase of drugs in a hospital pharmacy.
7.   Write a brief note on how parenterals are manufactured in a hospital.
8.   Explain briefly about news letter.
9.   Explain the differences between a hospital formulary, an adopted formulary and a drug list.
10. Describe ABC analysis.
11. Explain the organization of a small hospital.

III.   **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Define sterility.
13. Define a non formulary drug.
14. Define one RAD.
15. Define controlled substances.
16. What is floor stock method?
17. What is an institutional review board?
18. Define lead time.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2011

Subject: Clinical Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

| I. | **LONG ESSAY (Answer any TWO questions)** | 2x15=30 Marks |

1. Explain how the liver function tests are carried out and their importance in liver cirrhosis.
2. Explain the steps involved in modified systematic approach in answering queries.
3. What are "medication errors"? Enlist and describe medication errors.

| II. | **SHORT ESSAY (Answer any SIX questions)** | 6x5=30 Marks |

4. Write the different types of ward round participation.
5. How do you differentiate microcytic anaemia from macrocytic anemia?
6. Classify the ADRs with examples.
7. Describe the organization of drug information centre.
8. What are the functions of poison information centre?
9. Explain the various steps of DUE (drug utilization evaluation).
10. What is pharmacovigilance and why is it important?
11. What are the predisposing factors of ADRs?

| III. | **SHORT ANSWERS (Answer any FIVE questions)** | 5x2=10 Marks |

12. Write a brief note on management of ADRs.
13. Define "pharmaceutical care".
14. Explain any one causality assessment scale.
15. Mention the patient counseling techniques.
16. Why are communication skills important for a clinical pharmacist?
17. What are the various steps involved in the critical evaluation of literature?
18. Mention the tests associated with cardiac disorder.

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JSS UNIVERSITY, MYSORE
Fourth Year Pharm.D Examination - May 2011
Subject: Biostatistics & Research Methodology
Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   **2x15=30 Marks**

1. a) Explain the cross sectional studies and cohort epidemiological studies.   (5)
    b) Find the mean, median and mode of the following distribution of   (10)
        'number of students present in a class on different days'.

No of students	73	74	75	76	77	78	79	80	Total
No of days	2	14	29	36	43	38	34	29	225

2. a) Explain the various measures of variance with suitable examples.   (10)
    b) Describe the parametrical test used to determine the significance of   (5)
        difference of mean of more than 2 groups.

3. a) Explain the 2 types of correlation tests.   (10)
    b) Describe the normal distribution curve with an illustration.   (5)

II.   SHORT ESSAY (Answer any SIX questions)   **6x5=30 Marks**

4.   Calculate the mean and the standard deviation for the following data.

Age (Years)	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Persons	18	16	15	12	10	7	3	1

5.   Describe the application of scatter and logarithmic curves.
6.   Describe sign rank test with a suitable example.
7.   Explain the application of computer software programs in epidemiological studies.
8.   Define sample and explain the various methods of sampling in epidemiological studies.
9.   Explain the chi-square test with suitable example.
10. Explain the role of computers in clinical data management.
11. Explain the advantages of computerized literature retrieval.

III.   SHORT ANSWERS (Answer any FIVE questions)   **5x2=10 Marks**

12. Enumerate four advantages of standard deviation.
13. Explain the determination of odds ratio.
14. Differentiate parametric and nonparametric data.
15. Explain the formula for estimating the incidence of a disease.
16. Mention the formula used in estimating power of a study.
17. Enumerate the contents of an ideal protocol.
18. Enumerate the advantages and disadvantages of determining the prevalence of diseases.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2011

Subject: Biopharmaceutics & Pharmacokinetics

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   Classify and explain chemical pathways of drug biotransformation.
2.   Explain various factors affecting protein-drug binding and give the kinetics of protein-drug binding.
3.   What is dissolution? Explain various theories of drug dissolution. *dissolution Models*

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Explain the pharmacodynamic parameters.
5.   Describe pH-partition hypothesis.
6.   Explain the various pharmacokinetic parameters.
7.   Explain the Noyes-Whitney's equation.
8.   Mean residence time and its significance.
9.   How is bioequivalence test performed and evaluated?
10. What is volume of distribution (Vd)? Explain its significance.
11. Define the term clearance.   Explain the total body clearance or organ clearance.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Explain Fick's first law of diffusion.
13. How does food affect the rate and extent of drug absorption from the GIT?
14. Define biological half life.
15. Give examples of various binding sites with human serum albumin (HAS). *(HSA)*
16. How do bacteria present in the colon influence colonic pH?
17. How does the placenta act as effective BBB? *Barrier.*
18. What is endocytosis?

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QP Code: 4024

JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination May 2011

Subject: Clinical Toxicology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   **2x15=30 Marks**

1. Define acute poisoning and describe the general principles involved in the   (2+13)
    decontamination procedures of poisoning.
2. Explain the clinical manifestations and management of organophosphorous
    and benzodiazepine poisoning.
3. Enumerate various types of venomous snakes. Explain the clinical
    manifestations and complications of the snake bite. Explain the first aid
    and management of snake bite.

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4. Explain the importance of toxicokinetic principles in the management of
    poisoning.
5. Explain the sources, clinical features and management of lead poisoning.
6. Explain the clinical features and management of ethanol poisoning.
7. Explain the role of nicotine therapy in smoking cessation.
8. Explain the management of cocaine detoxification.
9. Explain the Rumack-Matthew nomogram in paracetamol poisoning.
10. Explain the role of methionine and N-acetyl cysteine in acute
    acetaminophen poisoning.
11. Describe the clinical symptoms and management of tricylic
    antidepressants.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Explain the management of iron overdose.
13. Write the clinical signs and symptoms of gamma ray radiation exposure.
14. Write the clinical signs and symptoms of pyrethroid poisoning.
15. Write the general causes of food poisoning.
16. Write the clinical features of sulphuric acid poisoning.
17. Write the signs and symptoms of mushroom poisoning.
18. What is neuroleptic syndrome?

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm. D Examination - May 2011

Subject: Pharmacotherapeutics I & II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) Write the clinical features, diagnosis and management of essential (10) hypertension.
    b) Enumerate the various patient counseling points for hypertensive (5) patients.

2. a) Classify the different types of arrhythmia. (5)
    b) Write the clinical manifestations, diagnosis and management of (10) arrhythmia.

3. a) Write the clinical symptoms, diagnosis and pathogenesis of (10) tuberculosis.
    b) Write a note on DOTS therapy. (5)

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain tumor grading and TNM staging.
5. Describe the role of pharmacist in rational drug use.
6. Explain the pathophysiology and management of chronic renal failure.
7. Write briefly on the pathogenesis and management of malaria.
8. Explain the pathophysiology of chronic obstructive airway disease.
9. Write a brief note on insulin analogues.
10. Write briefly on the diagnosis and management septicemia.
11. Write a brief note on diabetic ketoacidosis.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Write the various complications of diabetes mellitus.
13. What is forced expiratory volume?
14. What is alpha 1 antitrypsin deficiency?
15. Mention the various types of angina.
16. Write the various adverse effect of corticosteroids.
17. List the major causative organisms of urinary tract infection.
18. Write the adverse effects of sulfonylureas.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2010

Subject: Pharmacotherapeutics-III

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) Describe the risk factors of stroke.   (3+7+5)
    b) Explain th pathophysiology of different types of stroke.
    c) Write the therapeutic guideline for the management of stroke.

2. a) Describe the etiology, clinical manifestations and investigations for   (6+9)
       anaemia.
    b) Explain the pathology and pharmacotherapy of iron deficiency and
       megaloblastic anaemia.

3. a) Describe the clinical manifestations and diagnosis of epileptic   (4+8+3)
       seizures.
    b) Explain the general principles of treatment in the management of
       epilepsy.
    c) Write a note on the side effects of anticonvulsants.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Describe the pathogenesis of Inflammatory bowel disease.
5. Classify various types of headache.
6. Describe the management of Parkinson's disease.
7. Describe the pathophysiology of migraine.
8. Write the risk classification and guidelines for prevention of venous
    thromboembolism.
9. Explain the risk factors and management peptic ulcer.
10. Explain the application of evidence based medicine in effective decision
    making.
11. Explain the pathophysiology of Alzheimer's disease.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Write different stages of alcoholic liver disease.
13. List the risk factors for GERD.
14. List any four drugs used in treating anxiety.
15. List the drugs in management of neuralgias.
16. Mention the etiology of jaundice.
17. Write four differences between ulcerative colitis and Crohn's disease.
18. List four drugs induced blood disorders with the causative drug.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2010

Subject: HOSPITAL PHARMACY

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1.   Explain the constitution of pharmacy and therapeutic committee. Write the roles and responsibilities of PTC.

2.   Explain the central sterile supply service and add a note on duties of pharmacist in central sterile supply service.

3.   What are radio pharmaceuticals? Explain the handling and packing of radio pharmaceuticals.

II.   SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4.   Write the composition and functions of ethical committee.

5.   Explain various drug distribution systems in the hospital.

6.   Write brief note on total parenteral nutrition.

7.   Explain the role and responsibilities of hospital pharmacist.

8.   What is floor stock method? Explain its advantages and disadvantages.

9.   Quality control tests for large volume parenterals.

10.   Role of pharmacist in education and training.

11.   Explain the procurement of drugs for a hospital pharmacy.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12.   Define hospital formulary.

13.   What is lead time?

14.   Application of radioisotopes I^{131}

15.   What is work load statistics?

16.   Objectives of infection committee.

17.   Explain the types of powders.

18.   Any two types of revenue accounts.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2010

Subject: Clinical Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Define and classify adverse drug reactions. Explain the different scales used in the causality assessment.
2. What do you understand by 'drug utilization evaluation'? What are the different steps to carry out the same?
3. Describe the laboratory tests used in the evaluation of liver diseases.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. What are the differences between drug information and poison information centre?
5. What are the patient counseling techniques? Explain.
6. Write a note on 'pharmaceutical care'.
7. What are the points to check while carrying out medication chart review?
8. Describe 'ward round participation'.
9. Explain how the patient's history and medication history are taken.
10. Explain the steps involved in modified systematic approach in answering queries.
11. Explain the quality assurance of ADR monitoring.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Classify the drug information resources. Give examples for each.
13. Define 'pharmacovigilance'.   P.T.O.
14. What is medication error? Give any two reasons for the same.
15. Name the thyroid hormones and explain what role they play.
16. What are the different methods of reporting ADRs?
17. What are the normal serum creatinine values? Under what conditions do they alter?
18. What is the scope of clinical pharmacy?

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May-2010

JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2010

Subject: Biopharmaceutics & Pharmacokinetics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain phase I and phase II reactions of biotransformation of drugs.
2. Classify and explain the methods for measurement of bioavailability.
3. Illustrate the open one compartment model and open two compartment model.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain the pharmacodynamic parameters.
5. Define bioavailability. What are the objectives of bioavailability studies?
6. Explain the Noyes-Whitney's equation.
7. What are the factors affecting renal clearance?
8. Explain the methods for calculating K_E from urinary excretion data.
9. Describe the various factors affecting dosage regimen.
10. Write the factors responsible for non-linear pharmacokinetics.
11. Explain the mechanism of drug absorption by passive diffusion.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Enumerate the factors affecting protein-drug binding.
13. Define the terms   a) Distribution   b) Elimination.
14. Define dissolution and name the theories of drug dissolution.
15. Define biological half life.
16. List the different mechanisms of drug absorption.
17. State the Fick's law of diffusion and give its mathematical expression.
18. Define the following:

     a) Bioequivalence   b) Chemical equivalence
     c) Pharmaceutic equivalence   d) Therapeutic equivalence

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination May 2010

Subject: Clinical Toxicology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours | Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. a) Explain general principles of gut decontamination with its advantages   (8+7)
      and disadvantages.
   b) Describe the role of antidotes in the management of poisoning.
2. a) Explain the clinical features of acute paracetamol poisoning and its   (8+7)
      management.
   b) Classify pyrethroids. Explain the clinical features and management of
      pyrethroid poisoning.
3. a) Explain the various toxidromes with examples.   (8+7)
   b) Explain the clinical symptoms and management of organophosphate
      poisoning.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Explain clinical signs and symptoms of benzodiazepine overdose and its
   management.
5. Enumerate clinical signs and symptoms of opioid withdrawal and its
   management.
6. Explain the clinical features and management of tricyclic antidepressants
   overdose.
7. Explain the sources, signs and symptoms of copper poisoning.
8. Explain the types of food poisoning and their treatment.
9. Explain the management of cocaine detoxification.
10. Explain the role of nicotine therapy in smoking cessation.
11. Describe the role of charcoal in the management of poisoning.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Explain the clinical signs and symptoms of methanol poisoning.
13. Enumerate the clinical signs and symptoms of sulphuric acid poisoning.
14. Explain the clinical signs and symptoms of cholinergic syndrome.
15. Explain the clinical symptoms and management of mushroom poisoning.
16. Explain the signs and symptoms of cobra envenomation.
17. Explain intermediate syndrome.
18. Explain any two methods of enhancing the elimination of poisons.

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3 A

QP Code: 4025

JSS UNIVERSITY, MYSORE

Fourth Year Pharm. D Examination - May 2010

Subject: Pharmacotherapeutics I & II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I.	**LONG ESSAY (Answer any TWO questions)**	**2x15=30 Marks**

1. Classify renal failure conditions giving their characteristics. Write the (10+5)
   usefulness of dialysis in acute renal failure.

2. Describe the pathophysiology and clinical symptoms of Malaria. Write (10+5)
   the drugs used in the treatment of malaria.

3. Explain the pathophysiology and clinical manifestations of asthma. Write (10+5)
   the treatment approach to an acute asthma attack.

II.	**SHORT ESSAY (Answer any SIX questions)**	**6x5=30 Marks**

4. Explain the pulmonary function tests.
5. Explain the basic principles of cancer therapy.
6. Describe the drugs used in rheumatoid arthritis.
7. Write a note on surgical prophylactic use of antibiotics.
8. How is paediatric dose calculated?
9. Write the treatment approach for angina pectoris.
10. How is eczema treated?
11. Describe the chemotherapy of breast cancer.

III.	**SHORT ANSWERS (Answer any FIVE questions)**	**5x2=10 Marks**

12. Write the normal lipid profile.
13. Mention the strategies advocated to promote rational use of medicines.
14. How is viral conjunctivitis treated?
15. Write the basic difference between rheumatoid arthritis and osteoarthritis.
16. How is pulmonary tuberculosis diagnosed?
17. Mention the usefulness of ECG as a diagnostic tool.
18. What are the side effects of chemotherapeutic agents?

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2012

Subject: Pharmacotherapeutics-III

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) Classify different types of inflammatory bowel disease.
    b) Describe the pathogenesis of inflammatory bowel disease.
    c) Describe the pharmacotherapy of inflammatory bowel disease.   (5+5+5)
2. a) Describe the pathophysiology of Parkinson's disease.
    b) Describe the pharmacotherapy for the management Parkinson's
        disease.   (7+8)
3. a) Classify different types of headache.
    b) Explain the pathophysiology of migraine.
    c) Describe the pharmacotherapy of pain management.   (3+4+8)

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain the pathogenesis of GERD.
5. Describe the classification and diagnosis of anaemia.
6. Write a note on drug induced liver disorders.
7. Describe the general management of epileptic seizures.
8. Describe the drug regimen used in eradication of H pylori infection.
9. Describe the stages of Alzheimer's disease.
10. Write a note on symptoms and treatment of ischemic stroke.
11. What is evidence based medicine (EBM)? What is it's role in
    pharmacotherapeutic decision making.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Enlist the drugs to treat sleep disorders.
13. Classify drugs used in treatment of ulcer.
14. Define and classify jaundice.
15. Enlist the drugs for the treatment of peptic ulcer.
16. Name any four drugs with doses used in treatment of schizophrenia.
17. Write four differences between ulcerative colitis and Crohn's disease.
18. Name four drug induced liver disorders.

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QP Code: 4020

JSS UNIVERSITY, MYSORE
Fourth Year Pharm.D Examination - May 2012

Subject: Hospital Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain the hospital formulary systems in detail including the content, design, format, procedure for revision and committee responsible for the same.

2. Write a detailed note on education and training program for hospital pharmacist.

3. Describe the organizational structure of a hospital pharmacy and write the roles and responsibility of a hospital pharmacist.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Describe the role of a hospital pharmacist in central sterile supply services.

5. Write a brief note on labeling of radiopharmaceuticals.

6. Write a short note on the unit dose drug distribution in a hospital pharmacy.

7. What are the manufacturing facilities required for tablets to be prepared in a hospital pharmacy?

8. Describe therapeutic guidelines and its development.

9. Write in detail about the distribution of controlled substances within a hospital.

10. Explain the organization and functions of hospital.

11. Write the complications and indications of total parenteral nutrition.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Define EOQ.

13. Define a capital account.

14. Define one millicurie.

15. What is an infection control committee?

16. What is an envelope method?

17. What is an IV admixture?

18. What are pyrogens?

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QP Code: 4021

JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2012

Subject: Clinical Pharmacy

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Describe in detail the renal function tests.

2. What are the requirements to set up Drug Information and Poison Information Centers?

3. Define pharmacovigilance.   What are the requirements to set up a Pharmacovigilance Centre? What is the scope of pharmacovigilance?

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Give a brief account of causality assessment.

5. Classify the drug information resources with examples.

6. Write briefly about pulmonary function tests.

7. What do you understand by DUE? What can be achieved from DUE studies?

8. Explain the importance of communication skills.

9. What is pharmaceutical care? Why is it important?

10. What role can a pharmacist play to prevent medication errors?

11. How is patient medication history taken? Explain.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Classify the ADRs.

13. What are the predisposing factors for ADRs?

14. Mention the thyroid function tests.

15. Why are microbiological culture sensitivity tests important?

16. Explain spontaneous method of reporting. What are its advantages and disadvantages?

17. Write the duties of a clinical pharmacist during ward round participation.

18. What is the need for quality assurance of clinical pharmacy services?

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QP Code: 4022

JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2012

Subject: Biostatistics & Research Methodology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I.	**LONG ESSAY (Answer any TWO questions)**	**2x15=30 Marks**

1. a) Define null hypothesis. Explain the process of designing a research program.
    b) Describe the types of statistical errors and the power of a study.
    c) Describe the role of significance value and its importance in statistical testing.   (5+5+5)

2. a) Describe the tests of central tendency with suitable examples.
    b) Define standard deviation and explain the determination of the same with a suitable example.   (10+5)

3. a) Define and classify parametric tests of significance. Explain two parametric tests that are used to compare means.
    b) Define correlation tests. Explain the determination and applications of Spearman's correlation test with a suitable example.   (10+5)

II.   **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4.   Describe various clinical study designs with suitable examples.
5.   Explain the importance of estimating confidence interval with a suitable example.
6.   Explain the importance and estimation process of chi square value.
7.   Explain the estimation of sample size for a proportion data.
8.   Describe various graphical representations and their application.
9.   The following are the blood pressure of 10 patients. Find the standard deviation and standard error of mean.
     BP (mmHg): 114, 115, 123, 120,110, 130, 119, 118. 116, 115.
10. Describe the sign rank and Mann-Whitney U test with a suitable example.
11. Explain the applications of computers in statistical analysis.

III.   **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Calculate the median for the following data:
     Hospitalization period of 6 patients = 123, 125, 117, 127, 120, 127 days.
13. Define odds ratio and explain its application.
14. Explain normal distribution curve with an illustration.
15. Define relative risk and mention the formula for its determination.
16. Explain case series epidemiological studies and their advantages.
17. Explain the criteria for evaluating literature in evidence based medicine.
18. Describe the advantages and disadvantages of a histogram.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2012

Subject: Biopharmaceutics & Pharmacokinetics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1.   Define bioavailability and describe various methods to enhance the bioavailability of poorly soluble drugs.

2.   Define pharmacokinetics. Mention the use of pharmacokinetic models. Explain three different approaches to pharmacokinetic analysis of experimental data.

3.   Define absorption. Explain the various biological, physico-chemical and pharmaceutical factors which affect the drug absorption.

II.   SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4.   How are body tissues classified on the basis of perfusion rate?

5.   Explain the Wagner-Nelson method for calculation of Ka.

6.   What is volume of distribution (Vd)? Explain its significance.

7.   Explain the phase I reaction of biotransformation of drugs.

8.   What are the factors to be considered in the design of dissolution testing models?

9.   Explain the various factors affecting distribution of drugs.

10. Write the factors influencing the dosage regimen.

11. Write a note on biological half life.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. What is the effect of plasma drug-protein binding on the volume of distribution of drugs?

13. What is Hasselbalch equation?

14. Objectives of bioavailability studies.

15. Define: a) Peak plasma concentration (C_{max}) b) Area under curve (AUC).

16. Name the non-renal routes of drug excretion.

17. What do you mean by rate-limited step in drug absorption?

18. Name the methods for determining bioavailability of a drug from its dosage form.

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QP Code: 4024

JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination May 2012

Subject: Clinical Toxicology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. a) Explain the role of basic life supportive care in the case of poisoning.
    b) Describe the application of toxicokinetic principles in the management
       of poisoning.   (8+7)

2. a) Classify organophosphorous insecticides.   Explain the clinical   (5+5)
       features and complications of acute OP poisoning.
    b) Explain the management of OP poisoning.   (5)

3. a) Classify venomus snakes and describe the first aid measures for
       snake bite envenomation.
    b) Explain the management of acute mercury poisoning.   (8+7)

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Explain the various sources and clinical signs and symptoms of chronic
    lead poisoning.

5. Explain the clinical features and management of ethanol poisoning.

6. Explain clinical features and management of amphetamine intoxication
    and its management.

7. Enumerate the clinical features of opioid intoxication. Explain its
    management.

8. Explain the clinical signs, symptoms and complications of radiation
    exposure.

9. Explain the role of activated charcoal in gut decontamination process.

10. Explain the clinical features and management of paracetamol poisoning.

11. Write briefly on smoking cessation.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Explain the clinical signs and symptoms of paraquat poisoning.

13. Explain clinical features of sulphuric acid poisoning.

14. Explain the types of food poisoning.

15. Explain the clinical signs and symptoms of pyrethroid poisoning.

16. Explain the complications of iron overdose.

17. Explain the importance of Glasgow coma scale.

18. Enumerate any four antidotes used in poisoning case.

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QP Code: 4025

JSS UNIVERSITY, MYSORE

Fourth Year Pharm. D Examination - May 2012

Subject: Pharmacotherapeutics I & II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. a) Outline the various risk factors, diagnosis and symptoms of acute renal failure.
    b) Describe the management of acute renal failure.   (10+5)

2. a) Enumerate the different types of psoriasis.
    b) Write in detail the role of phototherapy and immunosuppressants in psoriasis.   (5+10)

3. Write in detail the general prescribing guidelines for pediatric and geriatric patients.   (15)

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Write the pathogenesis of breast cancer.
5. Explain the diagnosis, clinical symptoms and management of osteoporosis.
6. Explain the pathogenesis and management of scabies.
7. Write briefly on the pathogenesis and management of syphilis.
8. Explain the pathophysiology of asthma.
9. Write a brief note on the oral hypoglycemic agents.
10. Write briefly on the diagnosis and management of heart failure.
11. Classify chemotherapeutic agents of cancer.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Define the term agranulocytosis.
13. Write the various iron preparations.
14. Write the adverse effects of insulin.
15. What is combined oral contraceptive pill?
16. Write the various functions of aqueous humor.
17. What is gout?
18. Give the dialysate fluid composition.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2013

Subject: Pharmacotherapeutics-III

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) Write a note on pain pathways.   (4+9+2)
    b) Describe the treatment options for pain management.
    c) Write the side effects of medications used in treating pain.

2. a) What are the symptoms and precipitating factors of GERD?   (4+6+5)
    b) Explain the management of GERD.
    c) Explain the drug regimens used in eradicating H. pylori infection.

3. a) Describe the clinical manifestations and diagnosis of epileptic   (4+8+3)
    seizures.
    b) Explain the general principles of treatment in the management of
    epilepsy.
    c) Write a note on side effects of anticonvulsants.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Write a note on drug induced liver disorders.

5. Classify various types of headache.

6. Explain the management of Parkinson's disease.

7. What is evidence based medicine (EBM)?   What is its role in
    pharmacotherapeutic decision making?

8. Write the risk classification and guidelines for prevention of venous
    thromboembolism.

9. Explain the management of various types of anaemia.

10. Explain the pathophysiology of migraine.

11. Explain the pathophysiology of stroke.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Enlist the drugs to treat sleep disorders.

13. Classify drugs used in treatment of ulcer.

14. Mention the aetiology of jaundice.

15. Enlist the drugs used in the management of neuralgias.

16. Enlist any four drugs with doses used in treating bipolar disorders.

17. Write four differences between ulcerative colitis and Crohn's disease.

18. Name any four drug induced blood disorders with the causative drug.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2013

Subject: Hospital Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Explain in detail the different types of hospitals with their organizational structure and write a note on responsibilities of hospital pharmacist.
2. What are the different sources of communication available in hospital? Explain the preparation of a hospital formulary.
3. Explain the development of therapeutic guidelines. Add a note on their advantage and disadvantage.

II.   SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Explain the testing procedure for small volume parenterals.
5. Define and classify powder. How is eutectic powder prepared?
6. Explain the isotopes used in pharmacy.
7. Write a short note on VED analysis.
8. Explain the objectives and functions of PTC.
9. Explain total parenteral nutrition.
10. Write the application of EOQ in inventory control.
11. Explain warehousing of drugs and pharmaceuticals.

III.   SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Role of research and ethical committee.
13. List the various finances available for the hospital pharmacy.
14. Define therapeutic guidelines.
15. What is lead time and safety stock?
16. What are control substances?
17. Explain the additives used in liquid preparations.
18. What is individual prescription method?

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2013

Subject: Clinical Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions) 2x15=30 Marks

1. Describe the clinical laboratory tests used in the evaluation of acute renal failure.
2. What are the resources and facilities required to establish a drug information centre?
3. What is counseling? What are the aims of patient counseling? What information should be included in patient counseling? What are the aids that are used in counseling? Explain the stages in the counseling process.

II. SHORT ESSAY (Answer any SIX questions) 6x5=30 Marks

4. Classify adverse drug reactions.
5. What are medication errors? How do they occur?
6. What are the points to look for while carrying out medication review?
7. How does poison information centre differ from drug information centre?
8. What is the structure of patients' case history?
9. Write a note on liver function tests.
10. Write the systematic approach in answering drug information queries.
11. What are the different scales used in causality assessment?

III. SHORT ANSWERS (Answer any FIVE questions) 5x2=10 Marks

12. What are the risk factors for an ADR?
13. What is DUR? What is its importance?
14. Define pharmacovigilance. What are its aims?
15. Role of pharmacist in ward round participation.
16. How can an ADR be managed?
17. Name the thyroid function tests with normal values.
18. Give the importance of communication skills in pharmacy practice.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2013

Subject: Biostatistics & Research Methodology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   a) Explain the types of epidemiological studies.   (5+5+5)
      b) Describe ANOVA test with a suitable example.
      c) Five boys when put on special enriched diet showed gain in body weight 8, 2, 3 5 and 12 kgs, respectively. Find out the mean gain in body weight and the standard deviation from the mean.

2.   a) Describe the types of data with suitable examples.   (5+10)
      b) Explain various tests of central tendencies, with suitable examples.

3.   a) Explain Spearman's and Pearson's correlation with a suitable example.
      b) Haemoglobin values were estimated before and after the treatment with vitamin B_{12} therapy in 6 human volunteers. Calculate whether these changes were significant due to drug therapy or not.

Subjects (n)	Haemoglobin (gm) Before	Haemoglobin (gm) After B12
1	12.2	13.0
2	11.3	13.4
3	14.7	16.0
4	11.4	13.6
5	11.5	14.0
6	12.7	13.8

II.   **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Describe the normal distribution curve with an illustration.
5.   Explain Kruskal Wallis test with their applications.
6.   Explain the application of 'EPI INFO' software in epidemiological studies.
7.   The hemoglobin level of six cases was 11, 10, 15, 12, 11, 13 (g%) respectively. Calculate the variance of the observations.
8.   Explain sign rank test with a suitable example.
9.   Describe the formula used to estimate sample size for proportions.
10.   Differentiate bar graphs and histogram.
11.   Explain the role of computers in retrieval of drug information.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12.   Explain the application of computers in maintaining patient medication profile.
13.   Explain the determination of relative risk.
14.   Enumerate the types of variables.
15.   Define population and sample.
16.   Mention the formula used in chi square test.
17.   Enumerate the contents of an ideal abstract.
18.   Enumerate the advantages and disadvantages of determining the incidence of illness.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - May 2013

Subject: Biopharmaceutics & Pharmacokinetics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. What are the major causes of inter subject variability in drug response? On what factors do maintenance of drug concentration with therapeutic range depend?

2. Explain the various physico-chemical and biological factors affecting gastro-intestinal absorption of drugs.

3. Describe the open two compartment model for drug administered as IV bolus dose.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain noncompartmental pharmacokinetics.

5. Explain the methods to enhance the bioavailability.

6. MRT and biological half-life.

7. Describe the effect of age on the pharmacokinetic of a drug.

8. Describe the concept of clearance.

9. Explain briefly conjugation methods of drugs detoxification processes.

10. Explain the volume of distribution and plasma protein binding.

11. Describe Michaelis-Menton equation.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Mean residence time.

13. Fick's first law of diffusion.

14. Relative bioavailability.

15. TDM.

16. Hepatic drug clearance.

17. BBB.

18. Bioequivalence.

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JSS UNIVERSITY, MYSORE
Fourth Year Pharm.D Examination - May 2013
Subject: Clinical Toxicology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. a) Explain the process involved in the diagnosis and basic life supportive   (7+8)
        care in acute poisoning.
    b) Explain the decontamination procedure employed for poisoning.

2. a) Explain the clinical features and complications of acute   (10+5)
        organophosphate poisoning.
    b) Explain the role of atropine and pralidoxime in the management of OP
        poisoning.

3. a) Explain the sources, clinical signs and symptoms of chronic lead   (8+7)
        poisoning.
    b) Explain the management of acute mercury poisoning.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Write the first aid measures for snake bite envenomation.
5. Explain the clinical features and management of methanol poisoning.
6. Explain the detoxification process of cocaine abuse.
7. Classify and explain the management of pyrethroid poisoning.
8. Explain the signs and symptoms of opioid drug abuse and its
    management.
9. Write the clinical features of hallucinogenic drug abuse.
10. Explain the Rumack-Matthew nomogram in paracetamol poisoning.
11. Classify venomous snakes and explain the symptoms of any 2 families.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Explain cholinergic syndrome with suitable example.
13. Explain the role of haemodialysis in the management of poisoning.
14. Explain the role of penicillamine in metal poisoning.
15. Enumerate the clinical features of mercury poisoning.
16. Explain the clinical signs and symptoms of carbamate poisoning.
17. Explain the symptoms of mushroom poisoning.
18. Define drug dependence and drug abuse with suitable examples.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm. D Examination - May 2013

Subject: Pharmacotherapeutics I & II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain the pathophysiology, clinical symptoms and complications of diabetes mellitus. Write a note on insulin therapy.

2. Explain the pathophysiology, clinical symptoms of pulmonary tuberculosis. Write on DOTS regimen.

3. Explain the pathophysiology and clinical symptoms of osteoarthritis. Describe the treatment approach.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain pulmonary function tests.

5. Write the usefulness and problems associated with hormone replacement therapy.

6. How is bacterial conjunctivitis treated?

7. Write on need of appropriate use of antibiotics.

8. How is scabies treated?

9. Explain the pathophysiology of hyperlipidaemia.

10. How are chemotherapy induced nausea and vomiting managed?

11. What factors need to be considered while prescribing during pregnancy?

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Define essential drugs.

13. Mention the clinical symptoms of angina pectoris.

14. Name the drug induced lung diseases.

15. Mention the name of antifungal drugs for systemic therapy.

16. What are opportunistic infections?

17. What is myocardial infarction?

18. Give examples of oral contraceptives.

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QP Code: 4019

JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - November 2012

Subject: Pharmacotherapeutics-III

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

   1. a) Classify different types of headache.
       b) Explain the pathophysiology of migraine.
       c) Describe the pharmacotherapy of pain management.   (3+4+8)

   2. a) Describe the aetiology, symptoms and treatment of alcoholic liver
           disease.
       b) Write a note on management of inflammatory bowel disease.
       c) Write the pathogenesis of viral hepatitis.   (7+4+4)

   3. a) Describe the various symptoms associated with schizophrenia.
       b) Explain the side effects associated with use of antipsychotics.
       c) Write a note on pathophysiology of insomnia and anxiety disorders.   (5+4+6)

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

   4. Describe the pathogenesis of peptic ulcer disease.

   5. Explain the management of various types of anaemia.

   6. Write a note on drug induced liver disorders.

   7. Describe the general management of epileptic seizures.

   8. Explain the management of H pylori infection.

   9. Describe the signs, symptoms and treatment of Parkinson's disease.

   10. Write a note on symptoms and treatment of Alzheimer's disease.

   11. What is evidence based medicine (EMB)? What is its role in
        pharmacotherapeutic decision making?

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

   12. Enlist the drugs to treat sleep disorders.

   13. Classify drugs used in treatment of ulcer.

   14. Mention the aetiology of jaundice.

   15. List the drugs used in the management of GERD.

   16. Name any four drugs with doses used in treating bipolar disorders.

   17. Write four differences between ulcerative colitis and Crohn's disease.

   18. Name four anti anxiety drugs.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - November 2012

Subject: Hospital Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. What is inventory control? Describe in detail the methods used for inventory control.

2. Define tablets. How will you prepare conventional tablets by using different tablet manufacturing method techniques?

3. What is continuing professional development program? Explain the role of pharmacist in this program.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Write short notes on unit dose drug distribution method

5. Describe in brief the distribution of narcotics and other controlled substances in a hospital.

6. Explain the various source of procurement of drugs and pharmaceuticals.

7. List the advantages and disadvantages of therapeutic guidelines.

8. Explain the different methods of material management.

9. What is newsletter? What are the contents to be included in a newsletter?

10. Explain the requirements for setting a central sterile supply unit.

11. Write a brief note on the professional relations of hospital pharmacist.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Write any two objectives of PTC.

13. What is sterile formulation?

14. Write the advantages of creams over ointment.

15. What is total parenteral nutrition?

16. Types of hospitals.

17. Write any four advantages of powder over capsules.

18. Write the disadvantages of radio pharmaceuticals.

JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - November 2012

Subject: Clinical Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Explain the steps involved in modified systematic approach in answering drug information queries.
2. Write in detail about the microbiological culture sensitivity tests and their importance.
3. What are the daily activities of a clinical pharmacist? Write briefly about each activity.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Write about different scales used in causality assessment.
5. What are the different steps in DUE?
6. How are ADRs monitored and managed?
7. Write a note on cardiac function tests.
8. Write the functions of poison information centre.
9. Explain the need of quality assurance of clinical pharmacy services.
10. Explain the aims and scope of pharmacovigilance.
11. Explain how do you go about searching for biomedical literature in research?

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. What are the barriers involved in patient counseling?
13. Define and write the scope of clinical pharmacy.
14. Differentiate between an adverse drug reaction and an adverse drug event.
15. Give the importance of fluid and electrolyte balance.
16. Name the haematological tests with their normal values.
17. Define medication errors. Give two examples for the same.
18. Classify the drug information resources with examples.

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QP Code: 4022

JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - November 2012

Subject: Biostatistics & Research Methodology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)

2x15=30 Marks

1. a) Explain the methods adopted to calculate sample size for mean values.
    b) The following table shows the serum urate levels (mg/100ml) in 6 normal and 6 patients suffering from gout. Identify whether these changes are statistically significant or not.

Subjects (n)	Serum Urate levels (mg/100ml)	
	Normal	Gout patients
1	4.5	6.2
2	4.1	12.0
3	6.2	8.1
4	4.3	8.9
5	4.6	8.3
6	3.8	9.4

(5+10)

2. a) Classify data that are obtained from epidemiological survey with suitable examples.
    b) Describe the normal distribution curve with an illustration.
    c) Describe the advantages and disadvantages of a histogram.

(5+5+5)

3. a) Describe the role and determination of confidence intervals for mean values.
    b) Marks obtained by 7 students are 8, 5, 4, 12, 15, 5 and 7 respectively. Compute the mean, variance, standard deviation and standard error of mean.

(5+10)

II. SHORT ESSAY (Answer any SIX questions)

6x5=30 Marks

4. Describe the method for estimation and application if Chi square tests.
5. Explain the cross sectional studies with suitable examples.
6. Explain the role of confidence interval estimates.
7. Explain the determination and application of ANOVA tests.
8. Explain the difference between incidence and prevalence with their advantages and disadvantages.
9. Describe the sign rank and Mann - Whitney U test with a suitable example.
10. Describe the contents of an abstract in a scientific report.
11. Explain Person's and Spearman's correlations.

III. SHORT ANSWERS (Answer any FIVE questions)

5x2=10 Marks

12. Explain the various types of errors in statistical testing.
13. Mention the application of computers in community pharmacy.
14. Explain the criteria for evaluating a literature in evidence based medicine.
15. Calculate the median for the following data:
     Blood Pressure (mmHg) of 6 patients= 123,125, 117, 127, 120, 127 (mm Hg)
16. Define null hypothesis.
17. Enumerate the parts of a standard protocol.
18 Explain the determination of odds ratio.

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35

QP Code: 4023

JSS UNIVERSITY, MYSORE
Fourth Year Pharm. D Examination - November 2012
Subject: Biopharmaceutics & Pharmacokinetics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain the difference in apparent volume of distribution of drugs administrated by IV bolus in one & two compartments models.
2. Classify and explain the chemical pathways of drug biotransformation.
3. Define bioavailability and describe the methods to enhance bioavailability of poorly soluble drugs.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Describe the effect of age on pharmacokinetics of a drug.
5. Explain Wagner Nelson methods to determine absorption rate constant in one compartment model with 1st order absorption & 1st order elimination.
6. Why are phase I reactions called functionalization reactions?
7. How are body tissues classified on the basis of perfusion rate?
8. Explain the significance of protein binding.
9. Write the factors responsible for non-linear pharmacokinetics.
10. Write the factors influencing dosage regimen.
11. Describe the concept of clearance.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. What are various pharmacokinetic variability factors?
13. Define bioequivalence.
14. Name the physiologic barriers to distribution of drugs.
15. Mean residence time.
16. Name the mechanism of drug absorption.
17. Relative bioavailability.
18. BBB.

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QP Code: 4024

JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination November 2012

Subject: Clinical Toxicology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. a) Explain the general principles involved in the management of   (8+7)
       poisoning.
   b) Explain the sources, clinical features and management of arsenic
       poisoning.

2. a) Explain the symptoms, first aid measures and management of   (8+7)
       elapidae snake envenomation.
   b) Classify organophosphate insecticides. Explain clinical features and
       management of acute organophosphate poisoning.

3. a) Enumerate the clinical features of opioid intoxication. Explain its   (8+7)
       management.
   b) Describe the smoking cessation program with suitable examples.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Explain clinical signs and symptoms of acute ethanol poisoning and its
    management.

5. Explain clinical signs, symptoms and management of pyrethroid
    poisoning.

6. Describe the clinical symptoms and management of lead poisoning.

7. Explain the signs and symptoms of paracetamol poisoning.

8. Explain the clinical symptoms and management of mushroom poisoning.

9. Explain the clinical symptoms and complication of gamma radiation
    exposure.

10. Define toxicokinetics. Explain the methods of enhancement of
    elimination.

11. Explain the role of antidotes in the management of poisoning.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Enumerate the signs and symptoms of tricyclic antidepressant overdose.

13. Explain clinical features of sulphuric acid poisoning.

14. Enumerate four differences between venomous and non-venomous
    snakes.

15. Explain the clinical signs and symptoms of organochlorine pesticide
    poisoning.

16. Explain the general management of food poisoning.

17. Explain the role of charcoal in gut decontamination process.

18. Explain the clinical features of hallucinogenic drug abuse.

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QP Code: 4025

JSS UNIVERSITY, MYSORE

Fourth Year Pharm. D Examination - November 2012

Subject: Pharmacotherapeutics I & II

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Classify hypertension. Mention the common factors that influence blood pressure. Describe the treatment of hypertension in diabetic patients.
2. Describe the basic principles involved in cancer chemotherapy. Explain the merits and demerits of various chemotherapeutic agents.
3. Describe the pathophysiology, clinical symptoms and management of glaucoma.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. How does asthma differ from COPD?
5. Write the general guidelines required to be followed while prescribing for elderly patients.
6. Describe the clinical symptoms and treatment of urinary tract infection.
7. Explain the various HIV regimens.
8. How is hyperlipidaemia controlled?
9. Explain the usefulness and problems associated with hormone replacement therapy.
10. Explain the treatment of gastroenteritis.
11. How is psoriasis treated?

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Mention the normal blood glucose and blood urea levels.
13. Define rational drugs use. Give examples.
14. What are fixed dose combinations? Give examples.
15. What are emergency contraceptive pills?
16. Mention the clinical symptoms of meningitis.
17. List out drug induced pulmonary diseases.
18. What are the clinical symptoms of spondylitis?

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - November 2013

Subject: Pharmacotherapeutics-III

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) Describe the aetiopathogenesis and clinical presentation of   (7)
      Parkinson's disease.
   b) Describe the management of Parkinson's disease.   (8)

2. a) Explain the aetiopathogenesis of various types of Hepatitis.   (7)
   b) Briefly describe the pharmacotherapy of Hepatitis.   (8)

3. a) Define epilepsy and list its types. Add a note on the clinical   (7)
      presentation of epilepsy.
   b) Describe the pharmacotherapy of epilepsy.   (8)

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain the management of headaches.
5. Explain the pathogenesis of inflammatory bowel disease.
6. Explain the pain pathways.
7. Describe the aetiopathogenesis of jaundice.
8. Explain the pharmacotherapy of obsessive compulsive disorders.
9. Write a note on the aims and need of evidence based medicine.
10. Explain the different types of anaemias.
11. Describe the pathogenesis of peptic ulcer disease.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Mention the signs and symptoms of gastro esophageal reflux disease.
13. What are the various sleep disorders?
14. What are the different types of drug induced blood disorders?
15. List the drugs used in the management of venous thromboembolism.
16. Mention the clinical presentation of alcoholic liver disease.
17. Define evidence based medicine.
18. What are the signs and symptoms of schizophrenia?

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - November 2013

Subject: Hospital Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Describe in detail the central sterile supply services and role of pharmacist in the preparation and dispensing of IV admixtures.
2. Describe organizational structure and staff of hospital pharmacy.
3. Write the structure of P&T committee and describe the role of PTC in safe use of drugs in hospital.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain the management of materials and finance in hospital pharmacy.
5. What are the basic principles of successful budgeting?
6. Draw an organizational chart of an acute care teaching hospital.
7. What is ABC analysis?
8. Explain the working of CSSD.
9. Write a note on handling of radiopharmaceuticals.
10. Describe the functions of infection control committee.
11. Describe unit dose drug distribution system.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Staff requirement of hospital pharmacy.
13. What are major components of budget?
14. Mention any four good titles for hospital pharmacy communication.
15. Define inventory control.
16. What are the different types of discounts in pharmaceutical purchasing?
17. What are the minimum equipments requirement of approved nuclear pharmacy?
18. What are control parameters for moist heat sterilization?

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - November 2013

Subject: Clinical Pharmacy

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   Explain in detail the steps involved in providing pharmaceutical care. (8+7)
      What are the requirements for the pharmacist involved in providing the
      pharmaceutical care?

2.   Describe the structure and use of patient case history including patient
      medication history.

3.   Explain the tests categorized under pulmonary function tests with their
      significance.

II.   **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Explain how drug therapy monitoring is performed as a daily activity.

5.   Explain the steps in providing a systematic drug information query.

6.   Describe thyroid tests and their interpretation.

7.   What are the barriers in providing patient counseling?

8.   Write the source of medication errors.

9.   Role of pharmacist in management of ADR's.

10.   Explain briefly the daily activities performed by a clinical pharmacist.

11.   Write the pros and cons of abbreviation use in clinical practices.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12.   List the sources used in providing drug and poison information.

13.   What is the scope for a clinical pharmacist?

14.   Explain the fluid requirements.

15.   Mention the formats of case presentation.

16.   List the classes of a WHO scale in ADR assessment.

17.   What is verbal communication?

18.   List the steps involved in providing patient counseling.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - November 2013

Subject: Biostatistics & Research Methodology

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   **2x15=30 Marks**

1. a) Explain central tendency & dispersion. Define and compare the   (10)
       characteristics of mean, median, mode, variance, standard deviation
       (SD) & standard error of mean (SEM).
    b) With help of neat a diagram explain the characteristics of normal   (5)
       distribution.

2. Explain correlation and regression. Describe the methodology of Pearson
    product-moment correlation with suitable example.

3. a) With a suitable diagram explain different types of graphical presentation (10)
       of data.
    b) Describe the role of computers in patient data management in hospitals.   (5)

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4. Explain the methodology of paired t-test with a suitable example.

5. Give examples for parametric tests & write the steps involved in the
    calculations of Chi square test.

6. Explain the application of computers in the hospital pharmacy.

7. Describe the application of SAS package in statistical operations.

8. Mention the determinants of sample size. Describe the procedure for
    sample size calculation for comparison of two means.

9. Define odds ratio & relative risk. With the help of suitable examples explain
    their importance in epidemiological studies.

10. Write the general steps involved in calculation of one-way ANOVA.

11. Describe in detail the case control studies.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Classify data types with suitable examples.

13. Define null hypothesis. What is the criterion for rejection of null hypothesis?

14. What is power of the study and how is it calculated?

15. Enlist the applications of computer systems in hospital pharmacy.

16. Write advantages of computerized literature retrieval.

17. Define type-1 & type-2 errors. What is the permissible limit for them?

18. Mention the formula to calculate incidence.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - November 2013

Subject: Biopharmaceutics & Pharmacokinetics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) Define nonlinear pharmacokinetics.   (2)
    b) Give the reasons for nonlinearity with suitable examples. (5)
    c) Explain Michaelis-Menten method of estimating the parameters Km (8)
       and Vmax.
2. a) What is one compartment open model?   (3)
    b) Explain methods of estimation of primary parameters for a drug (12)
       following one compartment open model when given by intravenous
       bolus injection.
3. With suitable examples, explain the methods to enhance the
    bioavailability of poorly water soluble drugs.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Write a note on physiologic factors influencing absorption of drugs
    through gastro intestinal tract.
5. Write a note on statistical moment theory.
6. Write a note on organ clearance.
7. Describe conjugation reactions in biotransformation of drugs.
8. With a neatly labeled diagram explain the significance of plasma level-
    time curve.
9. Define and explain the significance of apparent volume of distribution.
10. Write a note on drug protein binding and its importance.
11. Explain active and passive transport of drugs across the gastrointestinal
    membrane.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. How do you calculate area under the plasma level time curve using
    trapezoidal rule?
13. What is Noyes-Whitney's equation?
14. Define absolute bioavailability. Give the equation to calculate it.
15. Mention the advantages of crossover designs over parallel designs in a
    bioequivalence study.
16. Give the therapeutic ranges of phenytoin and theophyllin.
17. What is hepatic first pass effect? Give examples.
18. Define therapeutic alternatives with examples.

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JSS UNIVERSITY, MYSORE

Fourth Year Pharm.D Examination - November 2013

Subject: Clinical Toxicology

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   **2x15=30 Marks**

1. Explain the methods of poison removal from the gastrointestinal tract.
2. Describe the causes, diagnosis and treatment strategies involved in food poisoning.
3. Write in detail the vital aspects of paracetamol poisoning with respect to toxicokinetics, clinical manifestations, diagnosis and management.

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4. Explain the mode of action, adverse effects and management of benzodiazepines poisoning.
5. Write the salient features of pyrethrin and pyrethroid poisoning.
6. Give an account on disulfiram therapy.
7. Describe the clinical manifestations and management of gamma radiation exposure.
8. Write briefly on the clinical features, treatment modalities of bee and wasp sting poisoning.
9. Outline the signs and symptoms of mycotoxins poisoning and the steps involved in their detoxication.
10. Explain the common clinical presentations, diagnosis and pharmacological management of copper poisoning.
11. Write the clinical features, diagnosis and management of sulphuric acid intoxication.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. What are the clinical manifestations of opiate withdrawal?
13. What are the neuropsychiatric and endocrine manifestations of alcohol poisoning?
14. Write the mechanism of action pralidoxime (2-pyridine aldoxime methyl chloride).
15. List the hallmark signs and symptoms of acute tricyclic antidepressants poisoning.
16. Enumerate the specific antidotes for cyanide poisoning.
17. Outline the source of lead exposure.
18. What are the clinical features of mushroom poisoning?

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2011

Subject: Clinical Research

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1.   Describe role and responsibility of sponsor, regulatory authority and clinical research associate.

2.   Explain the various phases of clinical trials.

3.   a) Explain supply, storage and handling of pharmaceutical products in   (10)
         clinical trials.
     b) Describe essential documents.   (5)

II.   SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4.   Describe the different roles and responsibilities of pharmacist in clinical trials.

5.   Describe regulatory environment in USA.

6.   Explain informed consent process.

7.   Explain safety monitoring in clinical trial.

8.   Describe the qualification required for the principal investigator and other team members.

9.   Explain the role of foreign sponsor.

10. Explain ICH-GCP guidelines.

11. What is protocol? Write different components of protocol.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. IND application.

13. Vulnerable groups.

14. Adverse drug reaction reporting.

15. Record keeping.

16. Electronic data processing.

17. Multicentre studies.

18. Interim review.

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2011

Subject: Pharmacoepidemiology & Pharmacoeconomics

Note: *Draw neat labeled diagrams wherever necessary.*
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Describe the experimental methods of medical studies with their limitations.
2. Explain the principles and evaluation of pharmacoeconomic methods.
3. Explain the measures of occurrence in epidemiological methods.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Explain the history of pharmacoeconomics evolution.
5. Describe cross sectional study and its sampling methods.
6. Explain randomized controlled trial.
7. Explain the relative measures used in epidemiological methods.
8. Describe drug utilization review.
9. Explain the benefits and limitations of drug surveillance programme.
10. Explain automated data system and its application in pharmacoepidemiological studies.
11. Describe drug induced birth defects.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Define cumulative incidence.
13. What is attributable risk?
14. Define risk ratio and rate ratio.
15. What is post marketing surveillance?
16. Write the applications of cost-benefit analysis.
17. Define meta analysis.
18. What is time - risk relationship?

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2011

Subject: Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   a) Explain Bayesian theory with example.   (6)
     b) Describe the analytical methods involved in the therapeutic monitoring   (9)
        of drugs used in seizure disorders.

2.   Explain pharmacokinetic interactions with suitable examples for
     absorption, distribution, metabolism and excretion.

3.   Write notes on
     a) Pharmacokinetic - pharmacodynamic correlation in drug therapy.   (5)
     b) Methods used for extracorporeal removal of drugs.   (5)
     c) Genetic polymorphism in drug metabolism.   (5)

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Write a note on protocol for therapeutic drug monitoring.

5.   How is the dose for elderly patient determined?

6.   Explain with suitable example the effect of hepatic disease on
     pharmacokinetics of drugs.

7.   Explain pharmacogenetic and pharmacodynamic relation with an
     example.

8.   Write a note on inulin and creatinine clearance.

9.   How will you adjust the dose for uremic patients?

10. How is the dose and dosing interval for patients determined?

11. Explain factors to be considered while designing a dosage regimen.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Define biliary clearance.

13. Write the formula for calculating ideal body weight.

14. Define adaptive method in population pharmacokinetics.

15. Define clinical pharmacokinetics.

16. Define nomogram.

17. Define genetic polymorphism.

18. Define pharmacogenetics.

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V year pharm-D. Exam May -2010

JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2010

Subject: Clinical Research

*Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.*

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   **2x15=30 Marks**

1. What is clinical trial? Describe the various phases of clinical trials.   (3+12)

2. a) Explain the qualification and duties of clinical Investigator as per ICH   (10)
        GCP.
    b) Explain the functions of Regulatory Authority.   (5)

3. a) Explain the ethical guidelines in clinical research.   (8)
    b) Add a note on procedure for NDA submission.   (7)

II. **SHORT ESSAY (Answer any SIX questions)**   **6x5=30 Marks**

4. Explain the toxicological approach in drug discovery.
5. Write the different types of dosage forms with their applications.
6. Explain the post marketing surveillance and mention few advantages.
7. Explain the components of data management.
8. Write short notes on "trends in international clinical research in India".
9. Explain the composition and responsibilities of Institutional Ethical
    Committee.
10. Explain the safety monitoring to be considered in clinical trials?
11. Explain the role and responsibilities of a sponsor in clinical trials.

III. **SHORT ANSWERS (Answer any FIVE questions)**   **5x2=10 Marks**

12. Types of auditors.
13. What are IND applications?
14. Informed consent Process.
15. Impartial witness.
16. Helsinki declaration.
17. Objectives of ICH-GCP.
18. Name the clinical trial regulatory bodies in USA.

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2010

Subject: Pharmacoepidemiology & Pharmacoeconomics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   **2x15=30 Marks**

1.   Define pharmacoepidemiology. Explain case-control studies and cohort   (3+12)
     studies with suitable examples.

2.   Define pharmacoeconomics. Describe various pharmacoeconomic   (3+12)
     methods.

3.   What is outcome research? Describe the various outcome measures in   (3+12)
     pharmacoepidemiology.

II.   SHORT ESSAY (Answer any SIX questions)   **6x5=30 Marks**

4.   Explain the aims and applications of pharmacoeconomics.

5.   Explain the needs and applications of pharmacoepidemiology.

6.   Distinguish between experimental and non experimental
     pharmacoepidemiological studies.

7.   What is medication adherence? Explain the various methods of
     assessing medication adherence.

8.   What is drug surveillance? Explain the benefits and limitations of drug
     surveillance programme.

9.   Explain 'quality adjusted life years'.

10. What are automated data systems? Explain how automated data
     systems serves as source of data for pharmacoepidemiological studies.

11. Write a note on studies of vaccine safety.

III.   SHORT ANSWERS (Answer any FIVE questions)   **5x2=10 Marks**

12. Applications of cost-benefit analysis.

13. Needs of pharmacoeconomic evaluations.

14. What is odds ratio? With sutiable example explain how to estimate odds
     ratio.

15. What is the need of post marketing surveillance?

16. Mention two drug products recalled with associated adverse events.

17. Define the terms 'prevalance' and 'incidence'.

18. What is signal generation? What is the significance of a 'signal'?

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2010

Subject: Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours

Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**　　　　2x15=30 Marks

1. a) How to calculate oral dose from intravenous dose?　　(4+6+5)
    b) Write the different formulas for calculating child dose.
    c) How will you determine the drug dosing for obese patients?
2. a) Define pharmacokinetic drug interactions. Write a note on (7+8)
        competitive displacement interaction.
    b) Explain drug metabolism with respect to enzyme induction and
        inhibition.
3. a) Explain the adaptive method followed in population pharmacokinetics. (6+9)
    b) Write a note on the methods adopted in analysis of population
        pharmacokinetic data.

II. **SHORT ESSAY (Answer any SIX questions)**　　　　6x5=30 Marks

4. What are the factors to be considered during the design of dosage
    regimen?
5. How will you adjust the dose for uremic patients?
6. Explain the protocol for therapeutic drug monitoring.
7. How to determine creatinine clearance in patients?
8. Explain genetic polymorphism in drug metabolism with suitable example.
9. What are the factors responsible for the inhibition of biliary excretion?
10. Which drugs require therapeutic drug monitoring? Give examples with
    respect to different disease conditions.
11. What are the pharmacokinetic changes that occur during renal disease?

III. **SHORT ANSWERS (Answer any FIVE questions)**　　　　5x2=10 Marks

12. Mention the types of nomogram.
13. Write the significance of pharmacokinetic/pharmacodynamic correlation.
14. Mention the methods for the extracorporeal removal of drugs.
15. Define pharmacogenetics.
16. Define genetic polymorphism.
17. Mention any four causes for renal dysfunction.
18. Give two important applications based on pharmacokinetic principle.

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2012

Subject: Clinical Research

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1.   What is 'clinical trial'? Explain phase I, II and III of clinical trial.

2.   a) Define good clinical practice (GCP).
     b) Describe ICH-GCP guidelines.   (3+12)

3.   Explain the composition, responsibilities and procedures of Institutional
     Ethics Committee.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4.   Write different methods of post marketing surveillance.
5.   Explain ethical issues in clinical research.
6.   Describe safety monitoring parameters in clinical trials.
7.   Explain role and responsibilities of auditors.
8.   Write the components of case record form (CRF).
9.   Explain the essential elements of informed consent form (ICF).
10. Describe record keeping and handling.
11. Explain different clinical study designs

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. IND applications.
13. Adverse drug event.
14. Steps of drug development process.
15. Responsibilities of investigator.
16. Components of data management.
17. Essential document of clinical trials.
18. SOP and GLP.

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QP Code: 4027

JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2012

Subject: Pharmacoepidemiology & Pharmacoeconomics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain measures of association in epidemiological methods.
2. Explain the sources of data for pharmacoepidemiological studies.
3. Explain the outcome assessment and types of evaluation in pharmacoeconomics.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Explain prospective, retrospective and nested cohort studies and their limitations.
5. Distinguish non randomized controlled trial and randomized database studies.
6. Advantages and bias in cross sectional studies.
7. Automated data system and its application in pharmacoepidemiological studies.
8. Drug induced birth defects.
9. Cost effectiveness in pharmacoeconomics.
10. Drug utilization review.
11. Meta analysis.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Define cluster randomized trial.
13. What are odds ratio and hazard ratio?
14. Applications of cost benefit analysis.
15. Explain signal generation.
16. Need for drug surveillance.
17. Softwares used in meta analysis.
18. Define medication adherence.

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2012

Subject: Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1.   a) Explain in detail the protocol for therapeutic drug monitoring.
      b) What are the factors to be considered during the design of dosage
          regimen?   (7+8)

2.   a) Explain the dose adjustment in renal disease with respect to total
          body clearance and elimination rate constant.
      b) Write a note on dosing of drugs in hepatic disease.   (9+6)

3.   a) Explain dosing with feedback procedure in population
          pharmacokinetics.
      b) Explain the methods adopted in the analysis of population
          pharmacokinetic data.   (7+8)

II.   SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4.   How is the drug dose for neonates, infants and children calculated?

5.   Explain the mechanism of drug interactions.

6.   How was the drug therapy optimized using pharmacokinetics and
      pharmacodynamics parameters?

7.   How is renal dysfunction in patients determined?

8.   How are the pharmacogenetic considerations useful in the management
      of disease conditions?

9.   Explain how genetic polymorphism helps in drug transport with an
      example.

10.   Write a note on hemodialysis and hemoperfusion.

11.   How is drug dose in uremic patients predicted?

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12.   Define dose ratio.

13.   Give two examples for drug interactions affecting absorption of drugs.

14.   Define therapeutic endpoint with example.

15.   Give two examples for inter-individual variability.

16.   Mention the applications of creatinine clearance value.

17.   What are the applications of Bayesian theory?

18.   Give examples for drug target genes that can influence drug response.

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2013

Subject: Clinical Research

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain pharmacological, toxicological and dosage form approaches to drug discovery.

2. a) Describe post marketing surveillance.   (6+9)
    b) Explain case record form and informed consent form.

3. a) Write on safety monitoring in clinical trials.   (6+9)
    b) Describe the regulatory body and its requirements in USA and Europe for conduct of clinical trials.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Describe drug characterization in drug discovery approach.
5. Explain phase II clinical trials.
6. Describe GCP guidelines.
7. Write the responsibility and composition of institutional ethics committee.
8. Explain role and responsibility of contract research coordinators.
9. Describe ethical guidelines in clinical research.
10. Explain inclusion, exclusion and withdrawal of subjects.
11. Describe special consideration in clinical trials.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Blinding.
13. Data management.
14. SOP.
15. Adverse event.
16. Schedule Y.
17. Statistics in clinical trials.
18. Role of pharmacist in clinical trials.

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2013

Subject: Pharmacoepidemiology & Pharmacoeconomics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. LONG ESSAY (Answer any TWO questions)   2x15=30 Marks

1. Explain the observational methods of medical studies with their limitations.
2. Describe the measurement of outcomes in pharmacoepidemiology.
3. Explain drug utilization review and its importance in clinical pharmacy.

II. SHORT ESSAY (Answer any SIX questions)   6x5=30 Marks

4. Distinguish prevalence, incidence and incidence rate.
5. Explain descriptive method of study design.
6. Methods of assessing medication adherence.
7. Automated data system and its application in pharmacoepidemiological studies.
8. Drug induced birth defects.
9. Risk management in pharmacoepidemiological studies.
10. Role of clinical pharmacist in formulary management.
11. Cost- effectiveness in pharmacoeconomics.

III. SHORT ANSWERS (Answer any FIVE questions)   5x2=10 Marks

12. Need for pharmacoeconomics evalutions.
13. Define case reports and case series.
14. What is relative risk? Explain with suitable example.
15. Bias in cohort studies.
16. Define factorial design.
17. Distinguish point and period prevalence.
18. Softwares used in meta analysis.

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - May 2013

Subject: Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. Explain extracorporeal methods of drug removal.

2. Explain the general approach and methods of drug dosage adjustments in renal impairment.

3. Classify and explain pharmacokinetic drug-drug interactions.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. Write a note on markers of GFR.

5. Describe briefly the genetic polymorphism in drug targets.

6. Define and explain the objectives of therapeutic drug monitoring.

7. Explain therapeutic drug monitoring of digoxin in brief.

8. Explain Bayesian theory with an example. Mention its advantages and disadvantages.

9. Write a note on pharmacodynamic and pharmacokinetic correlations in drug therapy and its significance.

10. Explain various methods to convert a patient's serum creatinine to creatinine clearance.

11. Write a note on clinical applications of pharmacokinetics.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Give any two equations to convert actual body weight of obese patients into ideal body weight.

13. Give the clinical significance of drug displacement interactions.

14. Give the equations to find new dose and dosing interval for uraemic patients.

15. Give any two methods to calculate new dose in paediatric patients.

16. How is trapezoidal rule used to estimate area under the plasma concentration- time curve?

17. What is meant by population pharmacokinetics?

18. Define enzyme induction. Give two examples.

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - November 2013

Subject: Clinical Research

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I. **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1. a) What is Helsinki declaration?
    b) Explain the principles and procedure of Helsinki declaration.
2. Describe the various methods of post marketing surveillance.
3. a) Explain the safety monitoring in clinical trials.
    b) Designing of clinical study documents.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4. List various investigations in clinical trials.
5. Describe the clinical trial regulatory bodies in India.
6. Explain briefly the drug development process.
7. Explain the qualifications or qualities of a volunteer in clinical trials.
8. Describe the informed consent process.
9. Guidelines of a good clinical practice.
10. Explain new drug application submission.
11. Explain the challenges in the implementation of guidelines.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Central drug standard control organization.
13. Types of dosage forms.
14. Components of data management.
15. Auditors and regulatory bodies.
16. Objectives of clinical trials.
17. Personnel in clinical research.
18. Need of IRB/IEC.

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - November 2013

Subject: Pharmacoepidemiology & Pharmacoeconomics

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours　　　　　　　　　　　　　　　　　　　　　Max. Marks: 70

I.　LONG ESSAY (Answer any TWO questions)　　　　　2x15=30 Marks

1. What is pharmacoepidemiology? Describe the various pharmacoepidemilogical methods with suitable examples.
2. What is pharmacoeconomics? Describe various costs and consequences in relation to pharmacoeconomic studies.
3. What are the parmeters used in the measurement of outcomes in pharmacoepidemiology study? Explain the daily defined dose in medicine use measurement.

II.　SHORT ESSAY (Answer any SIX questions)　　　　　6x5=30 Marks

4. What is drug utilization review (DUR)?
5. Write a note on aims and applications of pharmacoepidemiology.
6. What is medication adherence? Explain the various methods of assessing medication adherence.
7. Write a note on studies of vaccine safety.
8. What is drug surveillance? Add a note on Medwatch.
9. Add a note on instruments for measuring health related quality of life.
10. What are automated data systems? Explain how automated data system serves as source of data for pharmacoepidemiological studies.
11. Distinguish between experimental and nonexperimental pharmacoepidemiological studies.

III.　SHORT ANSWERS (Answer any FIVE questions)　　　　　5x2=10 Marks

12. What are the applications of cost-effectiveness analysis?
13. What is odds ratio? With suitable example explain how to estimate odds ratio.
14. What is prescription event monitoring?
15. What are indirect costs in COI model?
16. Mention any FOUR drug induced birth defects.
17. Define the terms 'relative risk' and 'attributable risk'.
18. What is signal generation? What is the significance of a signal?

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JSS UNIVERSITY, MYSORE

Fifth Year Pharm.D Examination - November 2013

Subject: Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring

Note: Draw neat labeled diagrams wherever necessary.
Your answer should be specific to the questions asked.

Time: 3 hours   Max. Marks: 70

I.   **LONG ESSAY (Answer any TWO questions)**   2x15=30 Marks

1.   Classify and explain pharmacokinetic drug interactions.
2.   Describe sampling, analytical methods and drug adjustments in therapeutic drug monitoring.
3.   Explain pharmacokinetic variability and the importance of individualization of dosage regimen.

II. **SHORT ESSAY (Answer any SIX questions)**   6x5=30 Marks

4.   Explain how population pharmacokinetic data is analysed.
5.   Describe the genetic polymorphism of cytochrome P 450 isoenzymes.
6.   Briefly explain the methods of measurement of GFR.
7.   Explain therapeutic drug monitoring of digoxin.
8.   Write a note on effect of hepatic disease on pharmacokinetics of drugs.
9.   Explain any one method of extracorporeal removal of drugs.
10. Write a note on pharmacokinetic and pharmacodynamic correlations in drug therapy and its significance.
11. Explain various factors to be considered for determining dosage regimen.

III. **SHORT ANSWERS (Answer any FIVE questions)**   5x2=10 Marks

12. Write the advantages of conversion of intravenous to oral dosing.
13. What is biliary clearance?
14. Define drug displacement interactions. Give examples.
15. What is azotemia?
16. Give the therapeutic ranges of phenytoin and theophyllin.
17. Define therapeutic drug monitoring.
18. Define clinical pharmacokinetics.

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