

JSS UNIVERSITY, MYSURU**First Year Pharm.D (RS 1) Examination - August 2017****Subject: Pharmaceutics****Time: 3 hours****Max. Marks: 70**

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

Section A: Multiple Choice Questions

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Which one of the following is an official compendium?
 - a) United States Pharmacopoeia
 - b) Martindale's Extra Pharmacopoeia
 - c) Remington's Pharmaceutical Sciences
 - d) Merck Index
- 2 Which one of following is an example for monophasic dosage form?
 - a) suspension
 - b) emulsion
 - c) jelly
 - d) gargle
- 3 Suppositories are categorized as :
 - a) semisolid dosage forms
 - b) liquid dosage forms
 - c) solid dosage forms
 - d) sterile dosage forms
- 4 Primary emulsion formula for oleo gum resin is:
 - a) 1 : 2 : 1
 - b) 1 : 2 : 2
 - c) 2 : 2 : 1
 - d) 3 : 2 : 1

- 5 Product which is available as both boilable or non-boilable variety:
- a) synthetic suture
 - b) cotton
 - c) gelatin sponge
 - d) catgut
- 6 Dosage form used for administration into rectum:
- a) douche
 - b) infusion
 - c) enema
 - d) lotion
- 7 One of the following products requires suspending agent for compounding:
- a) enema
 - b) mouth wash
 - c) lotion
 - d) emulsion
- 8 Posology is the study of :
- a) preservatives
 - b) safety of drugs
 - c) efficacy of drugs
 - d) dose of a drug
- 9 Which one of the following is an example of therapeutic incompatibility?
- a) synergistic effect
 - b) immiscibility
 - c) liquefaction
 - d) degradation of product
- 10 Important factor for deciding the dose to be given to a patient is:
- a) age
 - b) location of patient
 - c) generic or branded formulation
 - d) height of patient
- 11 First university to start pharmacy course in India:
- a) Nagpur University
 - b) Punjab University
 - c) Banaras Hindu University
 - d) Andhra University

- 12 Deflocculation and flocculation are related to which of the following products?
- a) semisolid dosage forms
 - b) emulsion
 - c) suspensions
 - d) solid dosage forms
- 13 As per apothecaries' system, 1 pound is equivalent to :
- a) 12 ounces
 - b) 8 ounce
 - c) 4 ounce
 - d) 2 ounce
- 14 Plaster of Paris contains:
- a) calcium phosphate
 - b) dibasic calcium phosphate
 - c) calcium sulphate
 - d) calcium chloride
- 15 Displacement value is required to calibrate:
- a) weighing balance
 - b) suppository mould
 - c) measuring cylinder
 - d) pipette
- 16 Powders shall be free of:
- a) fines
 - b) diluents
 - c) glidants
 - d) gritty particles
- 17 Kaolin is commonly used in:
- a) eutectic powder
 - b) effervescent granules
 - c) effervescent powder
 - d) antacid powder
- 18 Rate of extraction can be enhanced by using:
- a) gelling agent
 - b) preservatives
 - c) emulsifying agent
 - d) wetting agent

- 19 In galenicals, menstruum refers to:
- solvent
 - crude drug
 - milled moist drug
 - extract
- 20 0.45% w/v solution of sodium chloride is:
- isotonic
 - hypertonic
 - hypotonic
 - neutral

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- What is a prescription? Explain the parts of prescription. (2+8)
- Enlist the essential adjuvants used in preparation of monophasic dosage forms. Describe functions of organoleptic additives and stabilizers with examples. (3+7)
- Define suspension. Explain evaluation of suspensions. (2+8)

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- Define suppositories. Classify and explain suppository bases.
- Write a note on history and evolution of pharmacy education in India.
- Define isotonic solutions. Explain its significance and use in pharmaceuticals.
- What is eutectic mixture? Write a formula for eutectic mixture. What are the precautions to be taken while compounding eutectic mixture?
- What is an official compendium? Write two examples. Write a note on salient features of latest edition on Indian Pharmacopoeia.
- Explain therapeutic incompatibility with respect to overdose with an example.
- Explain reserved percolation.
- Enumerate the steps involved in the preparation of catgut.

JSS UNIVERSITY, MYSURU**First Year Pharm.D (RS 1) Examination - August 2017****Subject: Medicinal Biochemistry****Time: 3 hours****Max. Marks: 70***Your answers should be specific to the questions asked.**Draw neat labeled diagrams wherever necessary***Section A: Multiple Choice Questions**

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Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 In the feedback regulation, the end product binds to:
 - a) active site
 - b) inactive site
 - c) enzyme–substrate complex
 - d) allosteric site
- 2 All of the following statements are correct for enzymes EXCEPT:
 - a) enzymes are proteins
 - b) enzymes are catalysts
 - c) enzymes speed up chemical reactions by lowering energy of activation
 - d) enzymes alter equilibrium constant of the reaction which they catalyze
- 3 In man, uronic acid pathway is unable to produce ascorbic acid due to lack of:
 - a) gulonolactone oxidase
 - b) lactonase
 - c) xylulose
 - d) xylitol
- 4 Synthesis of glucose from pyruvate requires:
 - a) six high energy bonds
 - b) two high energy bonds
 - c) reduced nicotinamide adenine dinucleotide phosphate (NADP)
 - d) nicotinamide adenine dinucleotide + hydrogen (NADH)

- 5 Acyl-CoA cholesterol acyl transferase catalyzes:
- a) esterification of cholesterol
 - b) esterification of cholesterol with fatty acid
 - c) transfer of fatty acid from cholesterol
 - d) removal of fatty acid from cholesterol
- 6 Lipid store in a 70 kg adult is about :
- a) 10 kg
 - b) 15 kg
 - c) 20 kg
 - d) 25 kg
- 7 Compound with the greatest standard free energy:
- a) adenosine triphosphate (ATP)
 - b) phosphocreatinine
 - c) cyclic adenosine monophosphate (cAMP)
 - d) phosphoenolpyruvate
- 8 High redox potential indicates tendency of redox pair to _____ electrons.
- a) gain
 - b) lose
 - c) retain
 - d) bind
- 9 Creatine formation requires:
- a) glycine and arginine
 - b) arginine and methionine
 - c) glycine, arginine and methionine
 - d) methionine and glycine
- 10 Ubiquitin is a protein required for:
- a) protein degradation
 - b) amino acid degradation
 - c) glycoprotein degradation
 - d) protein synthesis
- 11 An example for only ketogenic amino acid is:
- a) leucine
 - b) lysine
 - c) tyrosine
 - d) tryptophan

- 12 Plasma ammonia level is elevated when function of _____ is impaired.
- a) liver
 - b) kidney
 - c) pancreas
 - d) heart
- 13 How many high energy phosphates are consumed in the formation of S-adenosyl methionine?
- a) 2
 - b) 3
 - c) 4
 - d) 5
- 14 Which of the following co-enzymes derived from vitamin B6 is required by all transaminases?
- a) pyridoxal phosphate
 - b) pyridoxamine phosphate
 - c) pyruvate transaminase
 - d) glutamate pyruvate transaminase
- 15 The renal threshold for glucose is:
- a) 150 mg/dl
 - b) 160 mg/dl
 - c) 180 mg/dl
 - d) 200 mg/dl
- 16 CGMP is the secondary messenger of:
- a) arterial natriuretic peptide
 - b) angiotensin
 - c) prolactin
 - d) insulin
- 17 The normal range of creatinine clearance is:
- a) 110-120 ml/min
 - b) 120-135 ml/min
 - c) 120-145 ml/min
 - d) 140-150 ml/min
- 18 The organ through which H^+ are eliminated from the body:
- a) liver
 - b) kidneys
 - c) stomach
 - d) skin

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JSS UNIVERSITY, MYSURU**First Year Pharm.D (RS 1) Examination - August 2017****Subject: Pharmaceutical Organic Chemistry****Time: 3 hours****Max. Marks: 70**

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Section B: Long Essay

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Section C: Short Essay

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Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Trans -2-butene is more stable than cis -2-butene because of:
 - a) Saytzeff's rule
 - b) Markovnikov's rule
 - c) Hückel's rule
 - d) Anti - Markovnikov's rule
- 2 Which of the following compounds is a functional group isomer of C_2H_5OH ?
 - a) ethanol, CH_3CHO
 - b) acetic acid, CH_3COOH
 - c) diethyl ether, $(C_2H_5)_2O$
 - d) dimethyl ether, $(CH_3)_2O$
- 3 Which one of the following is a secondary alcohol?
 - a) CH_3CH_2OH
 - b) CH_3OH
 - c) $CH_3CH(OH)CH_3$
 - d) $(CH_3)_3COH$
- 4 The IUPAC name of the compound $CH_3CH_2OCH_2CH_3$ is:
 - a) dimethyl ether
 - b) methoxy ethane
 - c) methyl ethyl oxide
 - d) ethoxy ethane

- 5 Which of the following is a ketose?
- fructose
 - mannose
 - arabinose
 - galactose
- 6 What is the bond angle and structure and of carbonium ion?
- 60° and trigonal
 - 109° and tetrahedral
 - 120° and trigonal
 - 180° and linear
- 7 Which one of the following is a weakest acid?
- carboic acid
 - 3,4-dimethylphenol
 - m-chlorophenol
 - p-chlorophenol
- 8 Reactivity of order of stability of free radical:
- allyl $> 1^\circ > 2^\circ > 3^\circ$
 - $3^\circ > 2^\circ > 1^\circ$
 - $1^\circ > 2^\circ > 3^\circ > \text{allyl}$
 - allyl $> 3^\circ > 2^\circ > 1^\circ$
- 9 When methanal is treated with CH_3MgBr in presence of dry ether the product formed is:
- propanol
 - ethyl alcohol
 - formaldehyde
 - acetyl aldehyde
- 10 In aldol reaction the aldehyde should have:
- beta hydrogen
 - alpha hydrogen
 - primary hydrogen
 - secondary hydrogen
- 11 Which among the following is moderate deactivator?
- Halogens
 - Nitro
 - trihalomethyl
 - aldehydes

- 12 In the conversion of nitrobenzene to methyl benzene following reagents are used:
- NaNO_3/HCl and $\text{CH}_3 \text{ Br}$
 - NaNO_2/HCl and $\text{CH}_3 \text{ Br}/\text{FeCl}_3$
 - NaNO_3/HCl and CH_3MgBr
 - NaNO_2/HCl
- 13 The stability of alicyclic alkanes can be established by:
- Resonance
 - hyper conjugation
 - heat of hydrogenation
 - heat of combustion
- 14 Example of aprotic solvent is:
- methanol
 - propanone
 - ethanol
 - ethanoic acid
- 15 Chemical identification of ketose is done using:
- Molisch test
 - Seliwanoff's test
 - Barfoed's test
 - Tollen's test
- 16 Isotopic effect can be observed in which of the following reactions?
- E1
 - E2
 - SN1
 - SN2
- 17 Anti -Markovnikov's addition is observed with which of the following reagent?
- HCl
 - Bromine
 - Chlorine
 - HBr
- 18 What is the relative order of reactivity of alkyl halides towards SN1?
- $1^\circ > 2^\circ > 3^\circ$
 - $2^\circ > 1^\circ > 3^\circ$
 - $2^\circ > 3^\circ > 1^\circ$
 - $3^\circ > 2^\circ > 1^\circ$

- 19 Which of the following is more basic?
- Ammonia
 - aniline
 - methylamine
 - dimethyl amine
- 20 Free radical substitution reaction is seen in the presence of:
- peroxide
 - nitric oxide
 - hydroxides
 - low temperature

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- Classify substituents Explain their influence on electrophilic aromatic substitution in terms of orientation and reactivity. (2+4+4)
- Explain the kinetics, mechanism, orientation, reactivity and stereochemistry involved when tert-butyl chloride is treated with water. (1+4+2+1+2)
- Explain benzoin reaction and Perkin's reaction. (5+5)

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- Explain Sachse-Mohrsche theory and molecular orbital concept of cycloalkanes.
- Explain why conjugated dienes are more stable than non-conjugated dienes.
- Write the Haworth synthesis of naphthalene.
- Define and classify carbohydrates with examples. Explain any four identification tests for carbohydrates.
- Explain which of the following is more basic and why:
a) Diethyl amine b) Neopentylamine.
- Explain why phenol is more acidic than alcohol. Write the effect of substituent on acid strength of phenol.
- Explain Friedel Crafts acylation reaction with its limitation.
- Explain the mechanism involved in the preparation of ethyl chloride from ethane.

JSS UNIVERSITY, MYSURU**First Year Pharm.D (RS 1) Examination - August 2017****Subject: Pharmaceutical Inorganic Chemistry****Time: 3 hours****Max. Marks: 70**

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Section A: Multiple Choice Questions

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Section C: Short Essay

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Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Color of lead dithizone complex in lead limit test is:
 - a) violet
 - b) green
 - c) red
 - d) colorless
- 2 Substance used as standard in sulphate limit test is:
 - a) sodium sulphate
 - b) magnesium sulphate
 - c) potassium sulphate
 - d) iron sulphate
- 3 Indicator used in sodium benzoate assay:
 - a) phenolphthalein
 - b) methyl orange
 - c) ferroin
 - d) crystal violet
- 4 Which of the following drugs is analyzed by gravimetric method?
 - a) BaSO_4
 - b) NH_4Cl
 - c) NaCl
 - d) HClO_4

- 5 One thousand micrograms is equal to one:
- a) gram
 - b) kilogram
 - c) part per million
 - d) milligram
- 6 Nitrous oxide has the formula:
- a) N_2O
 - b) NO_2
 - c) N_2O_2
 - d) NO
- 7 Activated charcoal acts as:
- a) mechanical antidote
 - b) biological antidote
 - c) physical antidote
 - d) chemical antidote
- 8 One of the following has a major role in transmission of nerve impulse:
- a) sodium
 - b) calcium
 - c) magnesium
 - d) zinc
- 9 Which of the following is called Rochelle salt?
- a) sodium potassium tartrate
 - b) sodium metaphosphate
 - c) sodium thiosulphate
 - d) sodium sulphate
- 10 Achlorhydria is a condition where there is:
- a) increased amount of acid secretion
 - b) decreased amount of acid secretion
 - c) increased amount of alkali secretion
 - d) decreased amount of alkali secretion
- 11 Chemically bentonite is:
- a) colloidal hydrated aluminium silicate
 - b) colloidal hydrated sodium silicate
 - c) colloidal hydrated zinc silicate
 - d) colloidal hydrated potassium silicate

- 12 Compound that can be used as primary standard for standardization of perchloric acid in non-aqueous titration:
- potassium hydrogen phthalate
 - sodium bicarbonate
 - potassium dihydrogen phosphate
 - sodium carbonate
- 13 Fajan's method of titration analysis involves detection of the end point on the basis of:
- color change
 - appearance of a precipitate
 - neutralization reaction
 - adsorption phenomena
- 14 Stannated hydrochloric acid is used in arsenic limit test as :
- oxidising agent
 - reducing agent
 - acidifying agent
 - complexing agent
- 15 In radioactive pharmaceuticals, half-life of a compound means the time taken for :
- one half of the compound to bind with serum albumin
 - onset of its action
 - its complete metabolism
 - the activity to decay to one half of its initial value
- 16 In the pH range 7-11, the colour of moderant black II indicator is:
- green
 - yellow
 - blue
 - colourless
- 17 N/10 oxalic acid is prepared to the approximate concentration by direct weighing of the hydrated crystals and should be standardized against N/10
- iodine
 - $K_2Cr_2O_7$
 - $KMnO_4$
 - $NH_4Fe(SO_4)_2$
- 18 Which indicator shows blue colour at the end point?
- starch mucilage
 - potassium permanganate
 - iodine
 - methyl red

19 Which of the following is NOT a primary standard?

- a) sodium carbonate
- b) succinic acid
- c) arsenic trioxide
- d) sodium hydroxide

20 Chemical name of green vitriol is:

- a) copper sulphate
- b) ferrous sulphate
- c) magnesium sulphate
- d) potassium sulphate

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 Write the principle, procedure and apparatus involved in arsenic limit test.
- 2 a) Explain the methods of preparation and assay of ferrous sulphate. (6+4)
b) Add a note on antidotes.
- 3 a) List the ideal properties of primary standards used in volumetric analysis with suitable examples. (5+5)
b) Write the method of preparation of 0.1 N sodium thiosulphate.

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 Write the methods of preparation and principle involved in the assay of boric acid.
- 5 What precautions have to be taken while handling radioactive materials? Add a note on pharmaceutical applications of radioactive substances.
- 6 Describes the methods of preparation of any two dental products.
- 7 List the important functions of extracellular and intracellular electrolytes in the body.
- 8 Explain the principle and procedure involved the assay of calcium gluconate.
- 9 Write the methods of preparation and principle involved in the assay of sodium bicarbonate.
- 10 Explain the Mohr's method for the estimation of halides.
- 11 Write a note on redox titrations.

JSS UNIVERSITY, MYSURU**Second Year Pharm.D (RS 1) Examination - August 2017****Subject: Pathophysiology****Time: 3 hours****Max. Marks: 70**

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20 Marks

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Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Which type of shock is associated with low blood levels?
 - a) hypovolemic shock
 - b) septic shock
 - c) anaphylactic shock
 - d) cardiogenic shock
- 2 Which stage of shock is associated with the worsening of tissue hypoperfusion and onset of worsening circulatory and metabolic imbalances, including acidosis?
 - a) initial non-progressive phase
 - b) developing phase
 - c) progressive stage
 - d) irreversible stage
- 3 Asthma is an example of type___ hypersensitivity.
 - a) I
 - b) II
 - c) III
 - d) IV

- 4 Which of the following is called antibody mediated cytotoxic hypersensitivity?
- a) type I hypersensitivity
 - b) type II hypersensitivity
 - c) type III hypersensitivity
 - d) type IV hypersensitivity
- 5 Tuberculosis is transmitted through infected:
- a) water
 - b) hands
 - c) blood
 - d) air
- 6 Which of the following is NOT a sign of inflammation?
- a) rubor
 - b) tumor
 - c) pallor
 - d) dolor
- 7 Reversible cell injury is characterized by all of the following EXCEPT:
- a) detachment of ribosomes
 - b) nuclear chromatin clumping
 - c) lysosomal rupture
 - d) cellular swelling
- 8 Which of the following neurotransmitters is low in Parkinson's disease?
- a) Dopamine
 - b) Serotonin
 - c) noradrenaline
 - d) GABA
- 9 Which of the following is a non-organ specific (systemic) autoimmune disease?
- a) myasthenia gravis
 - b) systemic lupus erythromatosus (SLE)
 - c) Hashimoto's thyroiditis
 - d) pernicious anemia
- 10 In type I diabetes (insulin dependent diabetes mellitus) the target of autoimmune attack is:
- a) all of the cells in islets of Langerhans
 - b) β cells in islets of Langerhans
 - c) glucagon producing cells in the islets of Langerhans
 - d) somatostatin producing cell in islets of Langerhans

- 11 When a person consents to be an organ donor upon his/her death, what is the most likely procedure that will be performed with the donated organs?
- a) xenograft
 - b) allograft
 - c) isograft
 - d) autograft
- 12 The primary type of cells that operate in surveillance and destruction of tumor cells are cytotoxic T - cells, NK cells and _____.
- a) macrophages
 - b) dendritic cells
 - c) neutrophils
 - d) eosinophils
- 13 Cancer is caused due to:
- a) controlled mitosis
 - b) uncontrolled mitosis
 - c) controlled meiosis
 - d) uncontrolled meiosis
- 14 Tumor markers are:
- a) chemicals that can be detected in the blood
 - b) related to genetics
 - c) external growths
 - d) signs of infection
- 15 Malaria is caused by:
- a) Entamoeba histolytica
 - b) Clostridium
 - c) Plasmodium
 - d) Leishmania
- 16 Vitamin C prevents:
- a) scurvy
 - b) antibody synthesis
 - c) rickets
 - d) pellagra
- 17 Which of the following is NOT a risk factor for cardiovascular disease?
- a) stress
 - b) consumption of aspirin
 - c) cigarette smoking
 - d) elevated blood cholesterol

- 18 A blood test done to diagnose typhoid is:
- a) ELISA test
 - b) Widal test
 - c) Western blot test
 - d) TORCH test
- 19 The primary reason for hypertension is:
- a) renal disease
 - b) diabetes
 - c) unknown
 - d) cancer
- 20 Marasmus is due to malnutrition of:
- a) proteins
 - b) proteins and calories
 - c) proteins and vitamins
 - d) proteins and minerals

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 Explain what is the meaning of hypersensitivity reactions. Explain their types. (5+5)
- 2 Explain the aetiology, pathophysiology, transmission and clinical features of acquired immune deficiency syndrome (AIDS). (2+3+3+2)
- 3 Explain mechanism of invasion of tumor.

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 Explain the pathogenesis and clinical symptoms of congestive heart failure (CCF).
- 5 Describe the pathophysiology of chronic renal failure.
- 6 Write a note on human leucocyte antigen (HLA) system.
- 7 Explain cellular mechanisms involved in inflammation.
- 8 Describe glycogen infiltration and glycogen storage disease.
- 9 Explain the pathophysiology of malaria.
- 10 Write a note on effects of radiations in humans.
- 11 Explain the aetiopathogenesis of angina pectoris.

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Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Prokaryotes that lack cell wall belong to the division of:
 - a) tenericutes
 - b) gracilicutes
 - c) firmicutes
 - d) mendosicutes
- 2 The concept of sterilization was introduced by:
 - a) Alexander Fleming
 - b) Louis Pastuer
 - c) Robert Koch
 - d) Paul Ehrlich
- 3 N-acetyl glucosamine and N-acetyl muramic acid are used for building:
 - a) capsule
 - b) ribosomes
 - c) cell wall
 - d) spores
- 4 Fungi having non-septate hyphae belong to the class of :
 - a) phycomycetes
 - b) ascomycetes
 - c) basidiomycetes
 - d) deuteromycetes

- 5 Prions belong to:
- a) fungi
 - b) viruses
 - c) rickettsia
 - d) bacteria
- 6 Bacteria which DO NOT use oxygen for growth but use it for energy are:
- a) aerobic
 - b) anaerobic
 - c) facultative anaerobic
 - d) microaerophilic
- 7 MacConkey medium is an example of:
- a) enrichment medium
 - b) transport medium
 - c) basal medium
 - d) differential medium
- 8 The indirect method used for measurement of cell mass is:
- a) plate count method
 - b) turbidimetric method
 - c) dry weight method
 - d) breed method
- 9 Spirochetal organisms are:
- a) rod shaped
 - b) spherical
 - c) helical
 - d) comma shaped
- 10 Which of the following organisms is acid fast?
- a) *Escherichia coli*
 - b) *Mycobacterium tuberculosis*
 - c) *Pseudomonas aeruginosa*
 - d) *Staphylococcus aureus*
- 11 Catalase test is used for the ability of the microorganism to utilize:
- a) indole
 - b) citrate
 - c) hydrogen peroxide
 - d) urea

- 12 Which method is appropriate for sterilizing oils?
- a) moist heat
 - b) filtration
 - c) tyndallization
 - d) dry heat
- 13 The microorganism used as a biological indicator for autoclave is:
- a) *Clostridium sporogenes*
 - b) *Pseudomonas diminuta*
 - c) *Bacillus pumilus*
 - d) *Serratia marcescens*
- 14 Horse serum is used as a suspending agent in:
- a) Chick - Martin test
 - b) Rideal - Walker test
 - c) Kelsey - Sykes test
 - d) FDA test
- 15 Which of the following is a quaternary compound?
- a) cetrimide
 - b) acridine
 - c) chlorbutol
 - d) hexachlorophane
- 16 *Limulus* amebocyte lysate assay is used to detect:
- a) cytotoxins
 - b) neurotoxins
 - c) enterotoxins
 - d) endotoxins
- 17 Antigen is also called as:
- a) hapten
 - b) immunogen
 - c) lysozyme
 - d) immunoglobulin
- 18 Quantitative buffy coat (QBC) test is used for diagnosis of:
- a) malaria
 - b) syphilis
 - c) tuberculosis
 - d) typhoid

- 19 The test organism used in the microbiological assay of vitamin B₂:
- Pseudomonas aeruginosa
 - Staphylococcus aureus
 - Candida albicans
 - Lactobacillus casei
- 20 The causative organism of gonorrhea belongs to the genus:
- Clostridium
 - Neisseria
 - Treponema
 - Pseudomonas

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- Describe sterility testing of pharmaceutical products.
- Explain agglutination reactions of antigen-antibody interactions.
- Describe the causation, prevention and treatment of malaria.

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- Explain the morphological and physiological characteristics of rickettsial organisms.
- Write a note on normal growth curve of bacteria.
- Enlist the methods for enumeration of bacteria. Explain viable count method.
- Describe the Rideal-Walker coefficient method used in evaluation of disinfectant.
- Explain phagocytosis, used as a defence mechanism.
- Explain the working of polymerase chain reaction (PCR).
- Write a note on standardization of sera.
- Write a note on causative organism, symptoms and prevention of typhoid.

JSS UNIVERSITY, MYSURU**Second Year Pharm.D (RS 1) Examination - August 2017****Subject: Pharmacognosy & Phytopharmaceuticals****Time: 3 hours****Max. Marks: 70***Your answers should be specific to the questions asked.**Draw neat labeled diagrams wherever necessary***Section A: Multiple Choice Questions**

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 The term pharmacognosy was coined by :
 - a) Hippocrates
 - b) Galen
 - c) Chopra
 - d) Seydler
- 2 Aleurone grains are:
 - a) plant proteins
 - b) animal fats
 - c) calcium oxalate crystals
 - d) colouring agents
- 3 Margosin is present in:
 - a) cassia
 - b) quassia
 - c) neem
 - d) opium
- 4 Lignified trichomes are seen in:
 - a) nux vomica
 - b) coriander
 - c) isabgol
 - d) senna

- 5 Name the sweet drug:
- a) ginger
 - b) clove
 - c) quassia
 - d) liquorice
- 6 General chemical test for carbohydrate drugs:
- a) Baljet test
 - b) Molisch test
 - c) Ninhydrin test
 - d) Lugal test
- 7 Spermaceti is obtained from:
- a) hypoprius
 - b) Physeter macrocephalus
 - c) Sus scrofa
 - d) Gadus morhua
- 8 Adulteration in honey is detected by:
- a) Fehle's test
 - b) Seliwanoff's Test
 - c) Molisch test
 - d) Borntrager's test
- 9 Gold Beater's skin test is used for the identification of:
- a) alkaloids
 - b) tannins
 - c) opium
 - d) volatile oil
- 10 Which of the following is anti-cancer drug?
- a) podophyllum
 - b) sterculia
 - c) spermaceti
 - d) olive oil
- 11 Antibiotic principle obtained from marine sources:
- a) agaroplectin
 - b) cycloheximide
 - c) tholepin
 - d) eugenol

- 12 Particle size of fine clay:
- a) less than 0.002 mm
 - b) 0.002 to 0.02 mm
 - c) 0.02 to 0.2 mm
 - d) 0.2 to 2.0 mm
- 13 Oleo gum resins are the mixture of:
- a) volatile oil + gum + resins
 - b) fixed oil + gum + resin
 - c) fats + gum + resin
 - d) gum + resins
- 14 Triterpenes contain _____ number of isoprene units.
- a) four
 - b) five
 - c) six
 - d) seven
- 15 Isobilateral leaf is present in:
- a) digitalis
 - b) datura
 - c) senna
 - d) vasaka
- 16 In staining procedure, chloral hydrate is used as:
- a) mounting agent
 - b) clearing agent
 - c) staining agent
 - d) colouring agent
- 17 The natural growth inhibiting substance is:
- a) abacisic acid
 - b) zeatin
 - c) auxins
 - d) ethylene

- 18 Indian gum is soluble in:
- ether
 - chloroform
 - alcohol
 - water
- 19 Ruthenium red is positive in :
- benzoin
 - agar
 - acacia
 - tragacanth
- 20 Stas-otto process is used for extraction of :
- glycosides
 - alkaloids
 - terpenoids
 - resins

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 Define evaluation. Enumerate the types of evaluation of crude drugs. (2+3+5)
Explain microscopic evaluation.
- 2 Write the pharmacognosy of honey. Add a note on method of preparation (5+5)
and detection of adulterants of honey.
- 3 Explain the morphology and anatomy of ephedra and nux vomica.

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 Explain pharmacological classification of crude drugs with examples.
- 5 Write a note on cultivation and collection of opium.
- 6 Draw a neat labelled diagram of transverse section (T/S) of fennel.
- 7 Write the source, method of preparation and uses of pectin.
- 8 Explain processing and storage of crude drug.
- 9 Define and classify essential oils. Write their general uses.
- 10 Pharmacognostic study of pyrethrum.
- 11 General chemical tests for alkaloids and tannins.

JSS UNIVERSITY, MYSURU**Second Year Pharm.D (RS 1) Examination - August 2017****Subject: Pharmacology****Time: 3 hours****Max. Marks: 70**

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

Section A: Multiple Choice Questions

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Which of the following drugs CAN NOT be administered by oral route?
 - a) diclofenac sodium
 - b) morphine sulfate
 - c) sodium acetyl salicylic acid
 - d) streptomycin sulfate
- 2 Which of the following is NOT a cell surface receptor?
 - a) ligand-gated ion channel receptor
 - b) G-protein coupled receptor
 - c) nuclear receptor
 - d) tyrosine kinase linked receptor
- 3 Stimulation of parasympathetic and sympathetic nervous system leads to one of the following common effect:
 - a) increased blood pressure
 - b) increased heart rate
 - c) increased sweat secretions
 - d) mydriatic effect in eye
- 4 Which among the following drugs is commonly indicated as an anti-hypertensive drug during pregnancy?
 - a) enalapril
 - b) furosemide
 - c) methyldopa
 - d) losartan

- 5 Monday's disease is caused in:
- a) people who work in production of organic nitrates tablets
 - b) patients who receive beta blockers for the treatment of angina
 - c) people who brush using non-fluoridated toothpaste only
 - d) patients who receive combination of beta blockers and calcium channel blockers
- 6 Prolonged usage of ACE inhibitors results in persistent unproductive cough. This may be due to accumulation of:
- a) renin in kidney
 - b) bradykinin/substance P in the lungs
 - c) cAMP levels in lungs
 - d) angiotensinogen - I in kidney
- 7 Which vitamin supplement can be provided to prevent neural tube defects in the fetus in pregnant women receiving antiepileptic drugs?
- a) pyridoxine
 - b) folic acid
 - c) vitamin K
 - d) vitamin D with calcium
- 8 Cheese reaction results in:
- a) bipolar depression
 - b) unipolar depression
 - c) hypertensive crisis
 - d) hypotensive crisis
- 9 To which of these effects of morphine tolerance DOES NOT develop:
- a) constipation
 - b) euphoria
 - c) analgesia
 - d) CNS depression
- 10 Which of the following is a poor surface anesthetic?
- a) procaine
 - b) lignocaine
 - c) tetracaine
 - d) bupivacaine
- 11 Surface anaesthesia is commonly used in the following interventions:
- a) vaginal delivery
 - b) operations of lower and upper limbs
 - c) tooth extraction
 - d) ocular tonometry

- 12 One of the common side effects of inhaled beclomethasone is:
- a) pituitary-adrenal suppression
 - b) oropharyngeal candidiasis
 - c) skin rashes
 - d) pneumonia
- 13 Identify the anti-asthmatic drug which is NOT a bronchodilator:
- a) sodium cromoglycate
 - b) theophylline
 - c) salbutamol
 - d) ipratropium bromide
- 14 Antitussives act by:
- a) increasing the bronchial secretions
 - b) depolymerizing mucopolysaccharides present in the mucus
 - c) raising the cough threshold and reducing the cough impulses
 - d) irritating gastric mucosa and desensitizing stretch receptors in the lungs
- 15 Out of the following anti-diabetic drugs used in the management of type II diabetes, the drug that is less likely to cause increase in body weight on chronic therapy:
- a) rosiglitazone
 - b) metformin
 - c) glibenamide
 - d) pioglitazone
- 16 Thyroid hormone receptor is an example of:
- a) ligand gated ion channel receptor
 - b) G-protein coupled receptor
 - c) tyrosine kinase linked receptor
 - d) nuclear receptor
- 17 Clomiphene citrate is indicated for:
- a) induction of ovulation in women
 - b) endometriosis
 - c) increase lactation in feeding mothers
 - d) decrease in follicle-stimulating hormone (FSH) and luteinizing hormone (LH) secretions

- 18 Lewis triple response induced by histamine consists of:
- flare, itching and wheal
 - redness, flare and wheal
 - flush, itching and flare
 - localized edema with redness and itching
- 19 A following class of drug is widely used in the management of migraine attacks:
- 5HT₃ antagonist
 - 5HT₄ agonists
 - 5HT_{1D} receptor antagonists
 - 5HT_{1D} receptor agonists
- 20 Smooth muscle stimulation by 5-HT is most prominent in the:
- bronchi
 - uterus
 - intestine
 - urinary bladder

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- List the processes of drug absorption. Explain the energy dependent process of absorption of drugs with examples. Mention ways to delay absorption of drugs. (2+5+3)
- Describe the pharmacological actions of morphine on central nervous system (CNS). Enumerate the uses of morphine. (8+2)
- Outline the steps involved in cholinergic transmission. Classify cholinergic drugs. Describe the pharmacological actions of acetylcholine. (4+3+3)

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- List the oral contraceptives. Explain their mechanisms of action.
- Explain the steps involved in neurohumoral transmission.
- Explain mechanisms of action of quinidine and lidocaine.
- Define sedative and hypnotics. Classify them with examples.
- Explain the analgesic, antipyretic, anti-inflammatory and anti-platelet actions of aspirin.
- Explain the pharmacological actions of theophylline.
- List the preparations of insulin. Explain the adverse effects of insulin.
- List the adverse effects of first generation anti-histaminic drugs. Explain the advantages of second generation anti-histaminic drugs over first generation drugs.

JSS UNIVERSITY, MYSURU**Second Year Pharm.D (RS 1) Examination - August 2017****Subject: Community Pharmacy****Time: 3 hours****Max. Marks: 70**

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

Section A: Multiple Choice Questions

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Which of the following statements is correct?
 - a) community pharmacies are always owned by the pharmacists only
 - b) any person can operate pharmacy after obtaining license
 - c) chain retail pharmacies do not fall under community pharmacy
 - d) medically qualified persons can start community pharmacy
- 2 Which of the following is NOT a legally permissible role of a community pharmacist?
 - a) dispensing medicines to the public
 - b) counselling of patients while dispensing medicines
 - c) providing medicine related information
 - d) administering injection to the patients as prescribed
- 3 The minimum space requirement for starting a community pharmacy is:
 - a) 10 square meter
 - b) 15 square meter
 - c) 25 square meter
 - d) 100 square meter
- 4 The instruction in prescription 'Hora Somni' means to take the medicine :
 - a) on empty stomach
 - b) at bed time
 - c) along with food
 - d) as and when required

- 5 What is the significance of superscription (Rx) in the prescription?
- a) instruction of dispensing
 - b) instruction of using medicines
 - c) authentication of prescription
 - d) no significance
- 6 Which of the following is NOT a part of assessment of the prescription?
- a) whether the prescription is legally valid
 - b) whether strength, dose and duration are appropriate
 - c) whether the prescription has medicine related issues
 - d) whether the prescription has polypharmacy
- 7 Buffer stock refers to:
- a) reserve stock
 - b) entry level stock
 - c) non-availability of stock
 - d) new stock
- 8 Which of the following factors lead to medication non-adherence?
- a) medication counseling
 - b) complexity of the regimen
 - c) generic medicines
 - d) easy accessibility
- 9 Which of the following can prevent onset of high blood pressure?
- a) exercise
 - b) medicines
 - c) early detection of risk factors
 - d) patient compliance of medications
- 10 Which of the following is an over-the-counter (OTC) product?
- a) amoxicillin
 - b) azithromycin
 - c) diclofenac
 - d) paracetamol
- 11 Which of the following component is NOT a part of philosophy of pharmaceutical care?
- a) development of a therapeutic plan to care for another human being
 - b) service for a patient centered need for meeting the social need
 - c) a description of the pharmacist's specific responsibility for patient care
 - d) providing information on how to use dispensed medications

- 12 Which of the following is a health promotion activity?
- a) development of new medicines
 - b) promotion of small family norms
 - c) preventing aggressive marketing of medicines
 - d) ensuring availability of quality medicines
- 13 Which of the following is a sexually transmitted disease (STD)?
- a) malaria
 - b) tuberculosis
 - c) filariasis
 - d) gonorrhea
- 14 Dietary fibre is useful in:
- a) reducing coronary heart disease
 - b) increasing nutrient absorption
 - c) digesting proteins
 - d) protecting the gastric mucosa
- 15 Which of the following statement is correct?
- a) milk is the best and most complete of all foods
 - b) human milk contains more proteins than animal milk
 - c) milk is a good source of iron
 - d) milk is a good source of vitamins
- 16 Emergency contraceptive pills are to be taken within how many hours of intercourse?
- a) within one hour
 - b) within 24 hours
 - c) within 48 hours
 - d) within 72 hours
- 17 Which of the following medicine is used in worm infestation?
- a) artemisinin
 - b) azithromycin
 - c) albendazole
 - d) antacids
- 18 Which of the following statement is NOT correct?
- a) registered pharmacist is duty bound to attend each and every person asking service
 - b) registered pharmacist is not duty bound to attend each and every person asking service
 - c) community pharmacists should maintain record of patients
 - d) community pharmacists should provide pharmaceutical care

- 19 Which one of the following DOES NOT reflect the philosophy of rational medicine use?
- a) right medicine to right patient
 - b) right dose and right duration
 - c) right to access to medicines
 - d) right medicine at most affordable price
- 20 Find out the unethical act:
- a) pharmacists not keeping abreast of current developments in pharmacy
 - b) pharmacists not keeping all types of medicines
 - c) pharmacists not counselling all patients
 - d) pharmacists not discriminating VIP and common patients

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 Explain the legal and resource requirements for starting a community pharmacy.
- 2 Describing the causative factors, clinical manifestation and prevention strategies required for HIV. (3+3+4)
- 3 Describe the concept of essential drugs. Add a note on role of community pharmacist in promoting rational use of antibiotics. (6+4)

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 Design a patient information leaflet with an example.
- 5 Explain the concept of rational drugs use.
- 6 What are lung function tests? What are their significance?
- 7 Explain the concept of economic order quantity (EOQ).
- 8 What are common nutritional disorders? How can they be managed?
- 9 Explain the consequences of non-adherence to medications with examples.
- 10 What are the barriers in counselling and how community pharmacists can deal with them?
- 11 Write a note on concept of health and health promotion.

JSS UNIVERSITY, MYSURU**Second Year Pharm.D (RS 1) Examination - August 2017****Subject: Pharmacotherapeutics - I****Time: 3 hours****Max. Marks: 70***Your answers should be specific to the questions asked.**Draw neat labeled diagrams wherever necessary***Section A: Multiple Choice Questions**

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Which of the following is an appropriate agent and starting dose for a patient with uncomplicated hypertension?
 - a) atenolol 25 mg once daily
 - b) propranolol 80 mg twice daily
 - c) propranolol 120 mg twice daily
 - d) pindolol 10 mg twice daily
- 2 Which drug is most likely to cause vasodilation-type side effects (headache, flushing) by blocking the movement of calcium across smooth muscle cells?
 - a) propranolol
 - b) captopril
 - c) enalapril
 - d) verapamil
- 3 Which of the following is TRUE about clonidine?
 - a) it has been used for smoking cessation and narcotic withdrawal
 - b) it can cause systemic lupus
 - c) it can cause hemolytic anemia
 - d) it has been used to treat benign prostatic hypertrophy
- 4 This drug is particularly useful in managing asthma in the elderly:
 - a) montelukast
 - b) ipratropium bromide
 - c) isoproterenol
 - d) epinephrine

- 5 Which of the following is a preferred route of administration for beta 2 agonists?
- a) inhalation via nebulizer
 - b) inhalation via metered dose inhaler
 - c) oral
 - d) parenteral
- 6 Which of the following therapies used in chronic obstructive pulmonary disease (COPD) does not exert therapeutic bronchodilatory effects?
- a) ipratropium
 - b) sympathomimetics
 - c) theophylline
 - d) corticosteroids
- 7 Effects of digitalis glycosides on the heart include:
- a) increased conduction velocity through the AV node
 - b) decreased refractory period of the AV node
 - c) positive inotropic effects
 - d) positive chronotropic effects
- 8 Which agent causes so much fluid retention and tachycardia that it should be used along with a diuretic and a beta blocker?
- a) diltiazem
 - b) minoxidil
 - c) captopril
 - d) losartan
- 9 Which of the following gland is NOT an endocrine gland?
- a) appendix
 - b) thyroid
 - c) adrenal
 - d) pituitary
- 10 Hypersecretion of glucocorticoids lead to :
- a) Cushing's syndrome
 - b) Addison's disease
 - c) acromegaly
 - d) gigantism
- 11 Treatment for pituitary dwarfism:
- a) desmopressin acetate
 - b) desmopressin and hydrochlorothiazide
 - c) human growth hormone 2.5 mg daily
 - d) human growth hormone 2.5 mg daily with adrenal and thyroid hormone

- 12 Function of oxytocin:
- a) it causes contraction of smooth muscles
 - b) it stimulates the contraction of gravid uterus
 - c) it stimulates the secretion of melanocyte stimulating hormone (MSH)
 - d) it stimulates the secretion of follicle-stimulating hormone (FSH)
- 13 Choose the correct formula to calculate the child dose based on the age of child.
- a) Child dose = $\frac{(\text{age in years}) * \text{adult dose}}{(\text{age} + 12)}$
 - b) Child dose = $\frac{(\text{age in years}) * \text{adult dose}}{(\text{age} + 24)}$
 - c) Child dose = $\frac{(\text{age in months}) * \text{adult dose}}{(\text{age} + 12)}$
 - d) Child dose = $\frac{(\text{age in days}) * \text{adult dose}}{(\text{age} + 24)}$
- 14 The usual adult dose regimen of a drug is 20 mg once a day. What is daily adult dose of this drug for a 10 months baby?
- a) 1.3 mg
 - b) 1.5 mg
 - c) 2.5 mg
 - d) 3 mg
- 15 Which is the first drug of choice for HIV positive pregnancy women?
- a) zidovudine
 - b) rifampicin
 - c) ehionamide
 - d) moxifloxacin
- 16 An early sign of congenital glaucoma:
- a) amblyopia
 - b) buphthalmos
 - c) leukocoria
 - d) anisocoria
- 17 Beta-adrenergic receptor blocker eye drops can:
- a) aggravate bronchial asthma
 - b) precipitate glaucoma
 - c) increase blood pressure
 - d) cause bradycardia
- 18 Pilocarpine (0.5%) drops are indicated in the treatment of:
- a) acute iritis
 - b) acute uveitis
 - c) myopia
 - d) glaucoma

- 19 Classification of glaucoma includes all EXCEPT:
- a) open angle
 - b) congenital
 - c) closed angle
 - d) wide angle
- 20 In which of the following condition the glucagon test is done?
- a) adrenogenital syndrome
 - b) pheochromocytoma
 - c) hyperaldosteronism
 - d) Addison's disease

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 Explain the aetiology, pathophysiology, clinical significance and non-pharmacological approach for control and treatment for asthma. (2+3+2+3)
- 2 Define angina pectoris and myocardial infarction. Outline the types of angina. Explain the aetiopathogenesis and management of myocardial infarction. (2+3+2+3)
- 3 Explain pathogenesis, diagnostic tests and pharmacotherapy of type II diabetes mellitus. (3+4+3)

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 Describe pathophysiology, pharmacotherapy and diagnosis of viral conjunctivitis.
- 5 Write a note on spirometry. Explain pulmonary function tests.
- 6 Signs and symptoms and pharmacotherapy of angina.
- 7 Define essential drug list. Explain the role of pharmacist in rational drug use.
- 8 Explain the therapeutic management of hypertension with special reference to drug of choice.
- 9 Describe the prescribing guidelines for geriatric patients.
- 10 Write a note on oral contraceptives.
- 11 Write notes on hypothyroidism and hyperthyroidism.

JSS UNIVERSITY, MYSURU**Third Year Pharm.D (RS 1) Examination – July/ August 2017****Subject: Pharmacology - II****Time: 3 hours****Max. Marks: 70**

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

Section A: Multiple Choice Questions

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Clopidogrel belongs to the class:
 - a) lipid lowering agent
 - b) anti-platelet
 - c) anticoagulant
 - d) hematinic
- 2 The anti-thrombotic drug, which inhibits cyclooxygenase enzymes is :
 - a) prednisone
 - b) dipyridamole
 - c) tranexamic acid
 - d) aspirin
- 3 Spironolactone has one of the following characteristics:
 - a) blocks potassium
 - b) activate potassium
 - c) blocks aldosterone
 - d) activates aldosterone
- 4 Identify one among the following which is also called as motilides, that can be used as prokinetic agent in patients with diabetic gastroparesis:
 - a) metoclopramide
 - b) erythromycin
 - c) clavulanate
 - d) cisapride

- 5 Which of the following butyrophenones 5-HT₃ receptor antagonist is used as powerful antiemetic in chemotherapy induced emesis?
- a) dronabinol
 - b) cyclizine
 - c) ondansetron
 - d) chlorpromazine
- 6 Which of the following is a sulfone that inhibits bacterial synthesis of dihydrofolic acid via competition with para-aminobenzoate?
- a) nalidixic acid
 - b) dapsone
 - c) trimethoprim
 - d) pyrimethamine
- 7 One of the following drugs is a macrolide antibiotic:
- a) clindamycin
 - b) vancomycin
 - c) azithromycin
 - d) hamycin
- 8 Which is the drug of choice in typhoid fever?
- a) chloramphenicol
 - b) ciprofloxacin
 - c) erythromycin
 - d) penicillin G
- 9 Which of the following antifungal agents is active both orally and topically?
- a) nystatin
 - b) griseofulvin
 - c) hamycin
 - d) clotrimazole
- 10 The antimicrobial which acts by interfering with DNA function in the bacteria :
- a) chloramphenicol
 - b) ciprofloxacin
 - c) streptomycin
 - d) vancomycin
- 11 Select the odd one out based on mechanism of action:
- a) penicillin
 - b) cephalosporin
 - c) rifampicin
 - d) vancomycin

- 12 Which of the following anticancer drug is NOT a prodrug?
- a) irinotecan
 - b) capecitabine
 - c) cyclophosphamide
 - d) vinblastin
- 13 Which of the following is NOT correct for prednisolone?
- a) used as immunosuppressant
 - b) used as immunostimulant
 - c) used as antiinflammatory in rheumatoid arthritis
 - d) used in the treatment of status asthmaticus
- 14 Which of the following statement is NOT correct for preclinical drug testing?
- a) there will be species variation, all that is seen in animals might not be seen in humans
 - b) acute toxicity is single dose study
 - c) subacute and chronic toxicity is multiple dose cumulative toxicity study
 - d) presently all animal studies have alternative in vitro methods
- 15 Major nuclear difference between eukaryotes and prokaryotes is presence of:
- a) DNA
 - b) RNA
 - c) histones and introns
 - d) RNA polymerase
- 16 Which of the following enzymes is NOT involved in DNA replication?
- a) polymerases
 - b) primases
 - c) helicases
 - d) reverse transcriptase
- 17 Diameter of DNA duplex is :
- a) 1 nm
 - b) 2 nm
 - c) 3 nm
 - d) 4 nm

- 18 The enzyme required for transcription is:
- restriction enzymes
 - DNA polymerase
 - RNA polymerase
 - RNAase
- 19 Which of the following is a proto-oncogene?
- P53 gene
 - RAS
 - retinoblastoma (Rb) protein gene
 - BRCA gene
- 20 Which of the following is NOT an application of bioassay?
- antimicrobial strength of a penicillin preparation
 - hypoglycemic strength of insulin preparation
 - anticoagulation units of heparin preparation
 - strength of the nebuliser preparation for asthma

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 Explain the mechanisms of action of any five classes of antiemetic drugs with examples.
- 2 Describe the mechanisms of action of anti-tubercular drugs. Elaborate (5+5) on the rationale of drug combination in therapy of tuberculosis.
- 3 Explain the mechanism of protein synthesis in eukaryotes.

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 What is the mechanism of action of heparin? Differentiate between heparin and low molecular weight heparin.
- 5 Define appetizers and carminatives. Explain how the appetizers and carminatives act in the body with examples.
- 6 Explain the pharmacology and therapeutic uses of aminoglycoside antibiotics.
- 7 Describe the mode of action of antiviral drugs with suitable examples.
- 8 Explain the importance of ion channels in cell signaling.
- 9 Outline the steps involved in gene expression.
- 10 Enumerate the advantages and disadvantages of gene therapy.
- 11 Explain the principle involved in endpoint method and matching method of bioassay with example.

JSS UNIVERSITY, MYSURU**Third Year Pharm.D (RS 1) Examination - August 2017****Subject: Pharmaceutical Analysis****Time: 3 hours****Max. Marks: 70***Your answers should be specific to the questions asked.**Draw neat labeled diagrams wherever necessary***Section A: Multiple Choice Questions**

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Solvent programming, which is also called gradient elution involves:
 - a) changing the column length
 - b) changing the mobile phase composition
 - c) using the mobile phase unchanged
 - d) successive injection of sample
- 2 Calibration of cell constant of a conductance cell is carried out by using a solution of:
 - a) 0.1 M NaCl
 - b) 0.1 M CaCl₂
 - c) 0.1 M KCl
 - d) 0.1 M AlCl₃
- 3 Increase in the extent of conjugation of a double bonded system results in:
 - a) hyperchromic shift
 - b) hypochromic shift
 - c) hypsochromic shift
 - d) bathochromic shift
- 4 Luminescence is the term applied to:
 - a) absorbed radiation
 - b) re-emission of previously absorbed radiation
 - c) excited radiation
 - d) transmitted radiation

- 5 A widely accepted detector electrode for pH measurement is :
- platinum wire
 - glass electrode
 - silver-silver chloride electrode
 - lanthanum fluoride
- 6 Infrared (IR) spectra appear as dips in the curve rather than maxima as in UV -visible spectra because it is a plot of percentage of:
- absorption against wave number
 - transmittance against concentration
 - absorbance against concentration
 - transmittance against wave number
- 7 Ion exchange capacity of a resin is dependent on:
- the total molecular weight of the resin
 - the total number of ion active groups
 - length of the ion exchange resin
 - solubility of the ion exchange resin
- 8 A conductivity cell consists of:
- platinum electrodes
 - platinum - calomel electrode system
 - platinum - tungsten electrode system
 - glass - calomel electrode system
- 9 Principle of column chromatography is:
- partition
 - absorption
 - ion exchange
 - thermal energy
- 10 When two substances have same absorbance, that wavelength is called as:
- iso-electric point
 - isocratic
 - isobestic point
 - isothermal
- 11 Which functional group is present in strong cation exchange resin?
- SO_3H
 - SH
 - OH
 - COOH

- 12 A moiety of molecule responsible for selective absorption of radiation in a specific range is called as:
- auxochrome
 - catalyst
 - chromophore
 - elicitor
- 13 Which of the following gas is NOT suitable for the use as a carrier in gas chromatography?
- nitrogen
 - helium
 - hydrogen
 - carbon dioxide
- 14 The inert gas used in gas chromatography is:
- hydrogen
 - carbon dioxide
 - helium
 - oxygen
- 15 Which is the expression for Beer's law?
- $T = I/I_0$
 - $\log I_0/I = abc$
 - $A = \log (I/T)$
 - $a = bc$
- 16 Principle of separation in thin layer chromatography (TLC) is:
- adsorption
 - partition
 - scattering
 - absorption
- 17 Thermal energy is the principle of:
- flame photometry
 - conductometry
 - potentiometry
 - amperometry
- 18 $\pi \longrightarrow \pi$ singlet transition results in:
- ultraviolet (UV) absorption
 - phosphorescence
 - fluorescence
 - excitation

- 19 The principle of ion exchange chromatography separation is:
- adsorption
 - partition
 - reversible exchange of functional group
 - solubility of components
- 20 In mass spectroscopy, the peak normally with highest mass-to-charge value is known as :
- base peak
 - parent peak
 - M+1 peak
 - M+2 peak

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 Explain the construction and working of a double beam ultraviolet (UV) - visible spectrophotometer. Write its applications in pharmacy. (4+3+3)
- 2 What is fluorescence? How does it arise? Explain the application of fluorimetry in pharmaceutical analysis. (2+2+6)
- 3 Explain the working of a gas chromatograph (GC) with the help of a neat labeled schematic diagram. Explain the application of GC in pharmacy. (7+3)

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 Explain the application of potentiometry in Karl-Fischer titration.
- 5 Write a note on conductometric titration.
- 6 Explain height equivalent to the theoretical plate (HETP).
- 7 Explain the detectors used in infrared (IR) spectroscopy.
- 8 Write a note on gel-filtration chromatography
- 9 Explain the methods of packing a column.
- 10 Write a note on validation of analytical instruments.
- 11 Explain the principle involved in the flame photometry.

JSS UNIVERSITY, MYSURU**Third Year Pharm.D (RS 1) Examination - August 2017****Subject: Pharmacotherapeutics II****Time: 3 hours****Max. Marks: 70***Your answers should be specific to the questions asked.**Draw neat labeled diagrams wherever necessary***Section A: Multiple Choice Questions**

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 According to the Centers for Disease Control (CDC), which of the following constitutes the first line of treatment of an initial episode of uncomplicated acute otitis media?
 - a) ceftibuten 9 mg/kg per day
 - b) amoxicillin 40 mg/kg per day
 - c) cefixime 8 mg/kg per day
 - d) clarithromycin 15 mg/kg per day
- 2 The following is NOT an early sign and symptom of sepsis:
 - a) fever or hypothermia
 - b) myalgias
 - c) proteinuria
 - d) lactic acidosis
- 3 Drug of choice in pregnancy with urinary tract infection (UTI) is:
 - a) nitrofurantoin
 - b) amoxicillin-clavulanate
 - c) quinolone
 - d) fosfomycin
- 4 The condition associated with the highest risk of developing infective endocarditis is:
 - a) mitral valve prolapses with regurgitation
 - b) presence of a prosthetic heart valve
 - c) rheumatic fever without valvular defects
 - d) intravenous drug abuse

- 5 Which of the following organisms is NOT commonly implicated in infective endocarditis?
- a) Streptococcus species
 - b) Staphylococcus species
 - c) Enterococcus species
 - d) Candida species
- 6 For which of the following sexually transmitted diseases (STDs) does the CDC recommend that patients be tested for HIV infection?
- a) gonorrhea
 - b) chlamydia
 - c) syphilis
 - d) trichomoniasis
- 7 Which of the following agents should be avoided in patients with glucose-6-phosphate dehydrogenase deficiency?
- a) Ivermectin
 - b) mefloquine
 - c) primaquine
 - d) albendazole
- 8 A patient determined to be severely dehydrated based on weight loss, clinical signs and symptoms should be rehydrated with?
- a) oral rehydration solution
 - b) intravenous Ringer's lactate
 - c) intravenous dextrose 5% in water (D5W)
 - d) intravenous colloid solutions
- 9 Adverse effects of amphotericin B:
- a) thrombophlebitis and renal toxicity
 - b) allergic reactions, reversible renal impairment on accumulation and hepatotoxicity
 - c) reversible renal impairment on accumulation, nephrotoxicity and hepatotoxicity
 - d) allergic reactions, hepatotoxicity and fungal infection
- 10 Oral candidiasis in AIDS is treated with:
- a) trimethoprim + sulfamethoxazole
 - b) fluconazole
 - c) acyclovir
 - d) zidovudine
- 11 Which one of the following cephalosporins is most likely to prolong prothrombin time?
- a) cephalothin
 - b) ceftriaxone
 - c) cefatoxime
 - d) cefotetan

- 12 Cryptococcal meningitis in the HIV infected patient:
- a) is optimally treated with lipid formulations of amphotericin B
 - b) may be accompanied by elevated intracranial pressure
 - c) generally requires lifelong suppressive therapy after successful induction and consolidation therapy with amphotericin B and fluconazole
 - d) is generally asymptomatic
- 13 Drug of choice for mycoplasma pneumonia :
- a) ceftriaxone
 - b) azithromycin
 - c) amoxicillin
 - d) cloxacillin
- 14 Monitoring of methotrexate therapy should include which of the following?
- a) complete blood count, aspartate transaminase (AST) and alanine transaminase (ALT), and albumin
 - b) complete blood count and urinalysis
 - c) eye examinations every six months
 - d) complete blood count, creatinine and glucose
- 15 Which of the following is NOT a contraindication to methotrexate therapy?
- a) chronic hepatitis B infection
 - b) creatinine clearance of 25 mg/dL
 - c) immunodeficiency
 - d) psoriasis
- 16 In a 45-year-old women receiving chloroquine for systemic lupus erythematosus (SLE), it is important to monitor for which one of the following?
- a) renal toxicity
 - b) retinal toxicity
 - c) liver toxicity
 - d) pulmonary toxicity
- 17 Drug of choice in the management of anemia in dialysis patients is:
- a) erythropoietin alpha
 - b) oral iron
 - c) folic acid
 - d) vitamin supplement

- 18 Patients with progressive chronic renal failure typically develop:
- a) haemolytic anemia
 - b) aplastic anemia
 - c) hypochromic microcytic anemia
 - d) microcytic anemia
- 19 Which of the following conditions may lead to nausea and vomiting in patients with cancer?
- a) metastases to bone
 - b) metastases to the brain
 - c) hypocalcemia
 - d) alopecia
- 20 The following is NOT a risk factor for breast cancer development:
- a) radiation
 - b) nulliparity
 - c) first pregnancy after the age of 35
 - d) multiple sexual partners

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 Explain the management of urinary tract infections.
- 2 Describe the prevention and treatment of breast cancer.
- 3 Explain the management of chronic renal failure.

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 Explain the role of supportive care in cancer.
- 5 Summarize the Revised National Tuberculosis Control Programme (RNTCP) 2016.
- 6 Describe the general guidelines for the rational use of antibiotics.
- 7 Write a note on peritoneal dialysis.
- 8 Explain the role of steroids in the management of osteoarthritis and systemic lupus erythematosus.
- 9 Explain the management of meningitis.
- 10 Describe the management of scabies.
- 11 Explain the management of gastroenteritis.

JSS UNIVERSITY, MYSURU**Third Year Pharm.D (RS 1) Examination - August 2017****Subject: Pharmaceutical Jurisprudence****Time: 3 hours****Max. Marks: 70***Your answers should be specific to the questions asked.**Draw neat labeled diagrams wherever necessary***Section A: Multiple Choice Questions**

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 The term of the patent for an invention from the date of patent filing is:
 - a) 5 years
 - b) 7 years
 - c) 14 years
 - d) 20 years
- 2 An example of artificial colour is:
 - a) titanium dioxide
 - b) caramel
 - c) cochineal
 - d) curcumin
- 3 Veterinary research institute is located at:
 - a) Ghaziabad
 - b) Kausauli
 - c) Izatnagar
 - d) Lucknow
- 4 Import of drugs for personal use in baggage may be allowed on an application made to licensing authority in:
 - a) Form 12-A
 - b) Form 12-B
 - c) Form 13-A
 - d) Form 13-B

- 5 In 1959, Government of India has appointed the Health Survey Committee under the chairmanship of:
- a) S S Bhatia
 - b) A Lakshman Swami Mudaliar
 - c) R N Chopra
 - d) R D Dalal
- 6 A 12-20 weeks pregnancy can be terminated only on opinions of ____ number of registered medical practitioner(s) (RMP):
- a) one
 - b) two
 - c) three
 - d) five
- 7 Standards for patent or proprietary medicines are given under the Schedule:
- a) U
 - b) V
 - c) X
 - d) Y
- 8 Price of formulation sold to retailer in case of scheduled drug as per Drug Price Control Orders (DPCO) should be retail price:
- a) minus 5%
 - b) minus 10%
 - c) minus 16%
 - d) plus 15% local taxes
- 9 List of ayurvedic and unani poisons are given in schedule:
- a) E
 - b) F & F1
 - c) E1
 - d) H
- 10 Name of a pharmacist from the register can be removed only by an order of the:
- a) Pharmacy Council of India
 - b) Registration tribunal
 - c) Executive committee of the State Pharmacy Council
 - d) Director of Health Services
- 11 Person in charge of state drug laboratory is:
- a) drugs inspector
 - b) chemical analyst
 - c) government analyst
 - d) drugs controller

- 12 Persons from teaching profession are elected to Pharmacy Council of India (PCI) by:
- a) State Government
 - b) Central Government
 - c) Executive Committee of PCI
 - d) University Grants Commission
- 13 From a bonded laboratory the spirituous preparations for detection of alcohol strength are sent to:
- a) drugs inspector
 - b) chemical examiner
 - c) government analyst
 - d) excise commissioner
- 14 The Pharmacy Act was passed in the year:
- a) 1945
 - b) 1947
 - c) 1948
 - d) 1951
- 15 Government opium factory is situated at:
- a) Delhi
 - b) Mumbai
 - c) Hyderabad
 - d) Neemuch
- 16 If the drug is not labelled in prescribed manner then it is known as:
- a) spurious drug
 - b) misbranded drugs
 - c) adulterated drugs
 - d) genuine drugs
- 17 A drug sample taken by the drugs inspector for analysis is sent to:
- a) drugs controller
 - b) chemical analyst
 - c) government analyst
 - d) excise commissioner
- 18 List of ailments and diseases that a drug should not claim to cure is given in Schedule:
- a) L
 - b) J
 - c) C
 - d) H

- 19 The period in hours of training to be undertaken by a Diploma in Pharmacy student in a hospital is:
- a) 500
 - b) 600
 - c) 750
 - d) 800
- 20 List of drugs which are marketed under generic names only is given in Schedule:
- a) T
 - b) U
 - c) W
 - d) X

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 What are the qualifications and duties of government analyst? Explain the procedure for testing or analysis of sample. (3+3+4)
- 2 Explain the procedure for import of drugs and offences relating to import of drugs.
- 3 Describe the constitution and functions of the Institutional Animal Ethics Committee (IAEC).

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 Write the important milestones in drug legislations in India.
- 5 What are the principles of pharmaceutical ethics?
- 6 Define the following terms:
 - a) Drug b) Cosmetic c) Misbranded drugs d) Spurious drugs
 - e) Adulterated drugs.
- 7 Write a note on design and construction of bonded laboratory.
- 8 State offences and penalties relating to psychotropic substances.
- 9 Write the objectives of Drugs Price Control Order (DPCO) and explain the calculation of retail price of formulation.
- 10 What are the education regulations framed by PCI?
- 11 Explain the procedure for obtaining an Indian patent.

JSS UNIVERSITY, MYSURU**Third Year Pharm.D (RS 1) Examination - August 2017****Subject: Medicinal Chemistry****Time: 3 hours****Max. Marks: 70***Your answers should be specific to the questions asked.**Draw neat labeled diagrams wherever necessary***Section A: Multiple Choice Questions**

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Prodrug is used to improve the:
 - a) palatability
 - b) photo stability
 - c) bioavailability
 - d) colour of the product
- 2 Carbamazepine is deactivated in the body by:
 - a) oxidation
 - b) reduction
 - c) epoxidation
 - d) precipitation
- 3 'Conformational change is required on the receptor to produce action'. This is called:
 - a) occupation theory
 - b) rate theory
 - c) induced fit theory
 - d) activation aggregation theory
- 4 Enzyme that brings hydrolysis reaction is:
 - a) alcohol dehydrogenase
 - b) cytochrome P 450 enzyme
 - c) sulpho-transferases
 - d) epoxidase hydrolase

- 5 A tool that helps to synthesise large number of compounds simultaneously is:
- combinational chemistry
 - drug design chemistry
 - molecular modeling
 - molecular chemistry
- 6 Following is NOT a surfactant:
- hexyl resorcinol
 - benzalkonium chloride
 - cetyl pyridinium chloride
 - sodium dodecyl sulphate
- 7 Which of the following is obtained from streptomyces?
- griseofulvin
 - amphotericin B
 - nystatin B
 - erythromycin
- 8 The following isomer of chloramphenicol is biologically active :
- D-erythro
 - D-threo
 - L-erythro
 - L-threo
- 9 Mycolic acid synthesis is inhibited by:
- isoniazid
 - pyrazinamide
 - rifampicin
 - ethambutol
- 10 Kala azar is :
- leishmaniasis
 - trypanosomiasis
 - gastritis
 - American sleeping sickness
- 11 Sulphur moiety is present in:
- Piperazine
 - Mebendazole
 - diethylcarbamazine
 - albendazole

- 12 Which of the following is an antiretroviral agent?
- a) Acyclovir
 - b) Amantadine
 - c) zidovudine
 - d) trifluridine
- 13 Reduction or abolition of antibacterial activity of sulphonamides can happen due to:
- a) removal of $\text{-SO}_2\text{NH}_2$ from the benzene ring
 - b) heterocyclic substitution at 1 position
 - c) heterocyclic substitution at 2 position
 - d) substitution of H of N4 nitrogen
- 14 The semi-synthetic antibiotic, rifampicin is derived from :
- a) rifamycin A
 - b) rifamycin B
 - c) rifamycin C
 - d) rifamycin D
- 15 Drug that acts on bacterial cell wall:
- a) penicillin
 - b) tetracycline
 - c) gentamycin
 - d) rifampicin
- 16 Which of the following is a beta-lactamase inhibitor?
- a) carbenicillin
 - b) amoxicillin
 - c) sulbactam
 - d) cloxacillin
- 17 The cephalosporin that contains - OH group is:
- a) cephalexin
 - b) cefuroxime
 - c) thienamycin
 - d) cefadroxil
- 18 The presence of piperazine group at 7th position in norfloxacin results in :
- a) less phototoxicity
 - b) loss of activity
 - c) anti-pseudomonas activity
 - d) long duration of action

19 Pick the drug that has no $\text{-SO}_2\text{NH}_2$ group in its structure:

- a) spironolactone
- b) chlorthalidone
- c) glipizide
- d) acetazolamide

20 Saturated steroid A ring is present in:

- a) nandrolone
- b) betamethasone
- c) norethindrone
- d) estradiol

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 Explain the synthesis of pamaquine. Describe how drugs act in the life cycle of malarial parasites. (5+5)
- 2 Write the synthesis of chloramphenicol. Write the structure activity relationship (SAR) of tetracyclines. Explain the mechanism of action of cefadroxil and amikacin. (3+3+2+2)
- 3 Classify antihypertensive agents with examples. Write the structure and mechanism of action of reserpine and enalapril. Outline the synthesis of propranolol. (4+4+2)

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 What are urinary tract anti-infectives? Write synthesis of ciprofloxacin.
- 5 Classify sulphonamides. Outline the synthesis of sulfacetamide.
- 6 What are alkylating agents? Write the structure of any four alkylating agents.
- 7 Write a note on diagnostic agents.
- 8 Write a note on protozoal diseases. Outline the synthesis of trimethoprim.
- 9 Write a note on the factors to be considered in prodrug design.
- 10 Classify diuretics. Explain the SAR of thiazide diuretics.
- 11 Write a note on synthetic antitubercular agents.

JSS UNIVERSITY, MYSURU**Third Year Pharm.D (RS 1) Examination - August 2017****Subject: Pharmaceutical Formulations****Time: 3 hours****Max. Marks: 70**

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

Section A: Multiple Choice Questions

20 Marks

Section B: Long Essay

20 Marks

Section C: Short Essay

30 Marks

Section A**Note:**

1. Answer ALL the questions in the OMR Sheet given by using BLACK/BLUE BALL POINT PEN ONLY
2. Choose the ONE CORRECT ANSWER from the 4 choices given for each question.
3. Maximum time for answering Section – A is 20 minutes.
4. At the end of 20 minutes submit the OMR sheet to the Invigilator.

Multiple Choice Questions**20 x 1 = 20 Marks**

- 1 Substance used for polishing tablets :
 - a) carnuaba wax
 - b) liquid paraffin
 - c) hard paraffin
 - d) polyethylene glycol
- 2 For formulation of capsules, the bulk of the ingredients is increased using:
 - a) diluent
 - b) protective
 - c) anti-dusting agent
 - d) glidant
- 3 Implants are more often made of:
 - a) gold alloy
 - b) hydroxyapatite
 - c) titanium
 - d) stainless steel
- 4 The rate of sedimentation of a flocculated suspension is:
 - a) low
 - b) high
 - c) initially low then high
 - d) uncontrollable

- 5 Sub-coating is given to tablet to:
- a) increase the bulkiness
 - b) avoid deterioration due to microbial attack
 - c) increase solubility
 - d) avoid stickiness
- 6 Electrolytes are added in parenteral preparations to:
- a) prevent water loss
 - b) adjust pH and tonicity
 - c) prevent microbial growth
 - d) prevent oxidation
- 7 What is the labeling condition for throat paint?
- a) to be sipped and swallowed slowly without addition of water
 - b) shake well before use
 - c) not to be swallowed in large quantities
 - d) not for local application
- 8 The temperature at which inversion occurs depending upon emulsifier concentration is known as:
- a) phase temperature
 - b) inversion temperature
 - c) phase inversion temperature
 - d) critical temperature
- 9 Which of the following can be used as preservative in capsule shell manufacturing?
- a) sorbitol
 - b) benzyl alcohol
 - c) carbolic acid
 - d) sodium metabisulphite
- 10 The capacity of capsule size 2 is:
- a) 150 mg
 - b) 250 mg
 - c) 450 mg
 - d) 550 mg
- 11 Enteric coating is achieved by using:
- a) hydroxypropyl methyl cellulose
 - b) carboxymethyl cellulose
 - c) cellulose acetate phthalate
 - d) povidone

- 12 The most widely used diluent in tablet formulation is:
- a) dextrose
 - b) lactose
 - c) microcrystalline cellulose
 - d) starch
- 13 Which route is suitable for those drugs having more hepatic first pass metabolism?
- a) intramuscular
 - b) nasal
 - c) buccal
 - d) subcutaneous
- 14 Creaming of emulsion is directly proportional to the difference in specific gravity between:
- a) oily and drug phase
 - b) oily and aqueous phase
 - c) aqueous and drug phase
 - d) drug and medium phase
- 15 Shellac is used in coating of tablets as:
- a) sub-coating for sugar coating
 - b) polishing agent
 - c) film coating agent
 - d) enteric coating agent
- 16 Which of the following is NOT used as emulsifying agent?
- a) electrolytes
 - b) hydrophillic colloids
 - c) surfactants
 - d) finely divided solids
- 17 Test that is used to ensure that all microorganisms have been destroyed or removed in parenteral products:
- a) clarity test
 - b) sterility test
 - c) leaker test
 - d) pyrogen test
- 18 Ointment bases prepared by hydrocolloid are:
- a) water soluble bases
 - b) absorption bases
 - c) oleaginous bases
 - d) emulsion bases

19 Chelating agent used in parenteral products:

- a) benzyl alcohol
- b) disodium acetate
- c) phenol
- d) glycerin

20 Bulking agent for parenteral preparation is:

- a) sodium metabisulphate
- b) benzyl alcohol
- c) carbolic acid
- d) sorbitol

Section B

LONG ESSAY (Answer any two questions)

2x10=20 Marks

- 1 Explain sugar coating of tablets including advantages, disadvantages and composition of coating material used.
- 2 Describe the additives used in parenterals.
- 3 Explain the mechanism of action of ocular drug delivery system. Describe the technique of preparing ocular drug delivery system. (4+6)

Section C

SHORT ESSAY (Answer any six questions)

6x5= 30 Marks

- 4 Describe the formulation of gel.
- 5 Explain buccal drug delivery systems.
- 6 Classify dosage form. Write a note on semi-solid dosage form.
- 7 Explain long acting parenterals.
- 8 Write a note on quality control tests for hard gelatin capsules.
- 9 Classify ointment bases. Write the ideal requirements of ointment bases.
- 10 Write a note on manufacturing defects of tablets.
- 11 Explain the formulation and filling of liquid orals.

JSS UNIVERSITY, MYSURU
Fourth Year Pharm.D Examination – August 2017
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 organisational structure and infrastructure requirements of hospital pharmacy. (7+8)
2. Define inventory control. List the techniques of inventory control. Explain ABC technique of inventory management. (2+3+10)
3. Write notes on the following: (8+7)
 - a) Handling of radiopharmaceuticals
 - b) Development of therapeutic guidelines.

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

4. Objective and functions of Pharmacy and Therapeutic Committee (PTC) of a hospital.
5. General procedure for purchasing of medicines.
6. Distribution of controlled substances inside a hospital.
7. Quality control tests for uncoated compressed tablets.
8. Individual prescription order system of drug distribution for in-patients.
9. Components of a budget.
10. Professional relations and practices of a hospital pharmacist.
11. Define and classify hospitals.

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

12. Define an investigational drug.
13. What are the different formats of hospital formulary?
14. Explain the drug basket method.
15. What is a newsletter?
16. Write the advantages and disadvantages of unit dose drug distribution.
17. Define tablets and capsules.
18. What is VED technique?

JSS UNIVERSITY, MYSURU**Fourth Year Pharm.D Examination - August 2017****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 factors influencing drug absorption in gastrointestinal tract.
2. Describe the two compartment open model pharmacokinetics of drug on intravenous bolus administration.
3. Describe bioavailability and bioequivalence studies.

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

4. Drug distribution and drug binding.
5. Renal clearance.
6. In vitro – in vivo correlation (IVIVC).
7. Factors causing non-linearity.
8. Phase II biotransformation reactions.
9. Enhancement of bioavailability through improvement of lipophilicity of drugs.
10. Accumulation of drugs on repetitive dosing.
11. Physiological pharmacokinetic model.

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

12. Define biopharmaceutics.
13. Michaelis Menten's equation.
14. Carrier mediated transport.
15. Biological half-life.
16. What is protein binding?
17. What are extravascular routes of drug absorption?
18. Absolute bioavailability formula.

JSS UNIVERSITY, MYSURU**Fifth Year Pharm.D Examination - August 2017****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 cost effectiveness and cost utility analysis with the help of case studies.
2. Elaborate on the role of pharmacoeconomics in formulary management decisions.
3. Explain the epidemiological study designs along with their advantages and disadvantages.

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

4. Write a short note on cross sectional studies and its significance in pharmacoepidemiological studies.
5. The WHO defined daily doses (DDD) for ceftazidime is 3g. The hospital data shows that about 4500 g was dispensed over last year. During that time there were 14000 patients represented by 69 patient days. Calculate the DDD of ceftazidime per 1000 patient days.
6. Write a note on estimation of point prevalence, period prevalence and incidence density.
7. Write the history and the need for pharmacoeconomic evaluations.
8. Studies on drug induced birth defects.
9. Write a note on Markov modeling and the steps involved.
10. Explain cost effective analysis plane.
11. Write a note on ad hoc data sources.

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

12. What are the methods of quality of life (QOL) adjustment?
13. Define a serious adverse event.
14. Write a note on PRISMA statement.
15. Write a note on types of costs.
16. What are the merits and demerits of cost minimization analysis?
17. What is the importance of vaccine adverse event reporting system (VAERS)?
18. Differentiate between confounding and bias.

JSS UNIVERSITY, MYSURU**Fifth Year Pharm.D Examination - August 2017****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. How is population pharmacokinetics data analyzed? Add a note on Bayesian theory and its applications with suitable examples. (6+9)
2. Define therapeutic drug monitoring (TDM). Enumerate the indications for TDM. Explain the TDM of cyclosporine. (2+5+8)
3. Explain the pharmacokinetic considerations during renal impairment and approaches for dose adjustment during renal disease. (8+7)

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

4. Explain extracorporeal removal of drug.
5. Describe genetic polymorphism in drug metabolism.
6. Enumerate and explain the variable factors in individualizing drug dosage regimen.
7. Explain drug interaction with respect to enzyme induction and inhibition.
8. Write a note on effect of hepatic diseases on pharmacokinetics of drugs.
9. Explain the principle and method of determining drug dose in obese patients.
10. Describe the relationship between elimination half-life and duration of activity of drugs.
11. Define and explain the applications of nomograms.

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

12. Write the significance of pharmacokinetic-pharmacodynamic correlation.
13. What is intrinsic clearance of drugs?
14. Define pharmacogenetics.
15. Write a note on methods of designing dosage regimens.
16. Enumerate the factors affecting dialyzability of drugs.
17. Write the significance of p-glycoprotein.
18. Explain the importance of inhibition of biliary excretion.

JSS UNIVERSITY, MYSURU**Fifth Year Pharm.D Examination – July/August 2017****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. Elaborate on conduct of different phases of clinical trials.
2. Explain the drug development regulatory environment in the United States (US) and India.
3. Describe informed consent process and the vulnerable groups with respect to clinical research.

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

4. Designing of case report form (CRF).
5. What are the roles and the responsibilities of the investigator?
6. Write a note on local toxicity studies.
7. Describe the safety monitoring in clinical trials?
8. Explain the critical elements of clinical trial monitoring process.
9. Explain the role and responsibilities of the clinical research co-coordinator.
10. Explain the challenges in the implementation of clinical research guidelines.
11. Elaborate on site closing out and archiving of trial documents.

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

12. Mention the committees under The European Medicines Agency (EMA).
13. Define clinical study protocol.
14. What is clinical data management?
15. What is the composition of institutional review board (IRB)?
16. What are the forms required for investigational new drug application (IND) and new drug application (NDA) submission?
17. Expected outcomes of phase I clinical trials.
18. Write a note on clinical data validation.
