

20/12/2011 - F.V.O/C

Code No. : 6521

**FACULTY OF PHARMACY**

**B.Pharm. III Year I Semester (Main) Examination, Nov./Dec. 2011**

**PHARMACOLOGY - I**

Time: 3 Hours]

[Max. Marks: 70

**Instructions :** 1) Answer all questions.

2) All questions carry equal marks.

1. Explain the following with examples in drug action. (4+4+6)

- a) Synergism
- b) Tachyphylaxis
- c) Biological half life.

OR

- a) Adverse drug actions
- b) Physiological antagonism
- c) Cmax.

(6+4+4)

2. Classify adrenergic drugs based on receptor concept with examples. What are their actions on the (a) heart (b) intestine and (c) bronchioles. What are their therapeutic uses ?

(6+6+2)

OR

Write the pharmacology of

- a) Physostigmine
- b) Hyoscine
- c) Carbachol.

(5+5+4)

3. Classify general anaesthetic drugs with examples. Discuss the advantages and disadvantages of

- a) Halothane and
- b) Nitrous oxide.

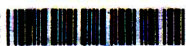
(6+4+4)

OR

Classify analgesic drugs based on mechanism of action with examples. Describe the drug treatment for pain due to headache, joint pain, MI and angina.

(6+8)

(This paper contains 2 pages)



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4. Classify antihypertensive drugs with examples based on their mechanism of action. How is acute hypertension treated ?

(10+4)

OR

- Describe the drug treatment for :

(7+7)

- a) Congestive heart failure
- b) Drug therapy for shock.

5. Write short notes on the pharmacology of

(7+7)

- a) Thiazides
- b) Organic nitrates.

OR

- a) Aldosterone antagonists
- b) Laxatives.

(7+7)

**FACULTY OF PHARMACY**  
**B.Pharmacy III Year I Semester (Main) Examination, Nov./Dec. 2011**  
**MEDICINAL CHEMISTRY - I**

Time: 3 Hours]

[Max. Marks: 70

**Note :** Answer all questions. All questions carry equal marks.

1. a) Write about various biotransformation reactions with examples of drugs for each reaction. 8

b) Write about the advantages Pro drug and Soft drug approach. 6

OR

c) Explain the importance of lipophilicity and partition coefficient in designing a drug molecule for optimum absorption. 7

d) Write about the protein binding of drugs and explain its advantages and disadvantages. 7

2. Write the structures of any four cholinesterase inhibitor drugs. Discuss the mechanism of action and therapeutic uses of these drugs. 14

OR

Write the structures of any four  $\beta$ -adrenergic blocking drugs. Discuss the mechanism of action and SAR (Structure Activity Relation) of these drugs.

3. Define Cardiac arrhythmias. Give the classification of antiarrhythmic drugs (according to mechanism of action). Discuss the SAR of Nifedipine analogues. 14

OR

Give the classification of antihyperlipidemic drugs. Write about HMG CoA reductase inhibitors. Give the synthesis of

i) Aterostatin

ii) Clofibrate.



4. Give the classification of diuretics. Discuss the mechanism of Action and SAR of thiazide diuretics. Write the synthesis of

14

- i) Hydrochlor thiazide
- ii) Furosemide.

OR

Give the classification of oral hypoglycemic agents. Discuss the mechanism of action of Aldose Reductase inhibitors. Write the synthesis of

- i) Tolbutamide
- ii) Glyclazide.

5. Write the structures of any four  $H_2$ -receptor antagonists and discuss the SAR. Write the synthesis of

14

- i) Cetrizine
- ii) Ranitidine.

OR

Write the structures of any four proton pump inhibitors and discuss their mechanism of action and therapeutic uses. Write the synthesis of

- i) Omeprazole
- ii) Chlorpheniramine maleate.





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**FACULTY OF PHARMACY**

**B. Pharmacy III Year I – Semester (Main) Examination, Nov./Dec. 2011**

**PHYSICAL PHARMACY – I**

Time: 3 Hours]

[Max. Marks: 70

**Note: Answer all questions. All questions carry equal marks.**

1. a) i) Define phase rule. Explain the phase diagram for a one component system and write the applications of it. 8
- ii) What is polymorphism? Write the effect of polymorphism on pharmaceutical and biological properties of drug/excipient molecules. 6
- OR
- b) i) Write the principle of thermal analysis. Explain DSC (Differential Scanning Calorimetry) and its applications for pharmaceuticals. 7
- ii) Explain the principles of kinetic molecular theory. 7
2. a) i) State and explain first and second law of thermodynamics. 10
- ii) What is enthalpy and heat capacity? 4
- OR
- b) i) Define free energy. Write about free energy functions and its applications. 8
- ii) Explain: 6
  - a) Specific heat
  - b) Latent heat
  - c) Conservation of energy.
3. a) i) Explain Arrhenius theory of electrolyte dissociation. 7
- ii) Explain Debye-Huckle's theory. 7

OR



- b) i) What are colligative properties? Write about freezing point depression method giving the calculation of molecular weight of a compound. 9
- ii) Write about Sorensen's pH scale and give its applications. 5
4. a) i) Explain the cryoscopic method and the sodium chloride equivalent method of adjusting isotonicity. 5
- ii) Explain buffer capacity and give its pharmaceutical significance. 5
- iii) What is the maximum buffer capacity of an acetate buffer with a total concentration of 0.020 moles/liter? 4
- OR
- b) i) Explain the theories in the use of pH indicators. 5
- ii) What are pharmaceutical buffers? Explain the selection and preparation of pharmaceutical buffers. 9
5. a) i) Give the design and cell equation for any two types of electrodes. 5
- ii) How do you operate a pH meter? 5
- iii) What are promoters and inhibitors in catalysis? 4
- OR
- b) i) Write a note on oxidation-reduction potential. 5
- ii) Explain an electro chemical cell. 5
- iii) Define catalysis. Give its significance in the pharmaceutical field. 4

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**FACULTY OF PHARMACY**

**B.Pharmacy III Year I Semester (Main) Examination, Nov./Dec. 2011**

**PHARMACEUTICAL TECHNOLOGY (Pharmaceutics – II)**

Time: 3 Hours]

[Max. Marks: 70

**Note : Answer all questions. All questions carry equal marks.**

1. a) Write notes on following : (6+4+4)

i) Organoleptic agents

ii) Surfactants

iii) Antioxidant.

OR

b) i) Discuss in detail the materials used in filling, finishing, sealing and formulation aspects of hard gelatin capsules. 7

ii) Write note on manufacture of soft gelatin capsules. 7

2. a) Differentiate between the following : (4+4+6)

i) Suspension and Emulsion in terms of general principles.

ii) Flocculated and non-flocculated suspension.

iii) Stability of suspension and emulsion.

OR

b) i) Define the term emulsifying agent. Write the qualities of an ideal emulsifying agent. How will you classify the emulsifying agents ? 7

ii) Discuss in brief the various methods used for the preparation of emulsion. 7

3. a) Explain in detail sugar coating and film coating of tablets. 14

OR

b) Explain quality control tests for tablets. 14

(This paper contains 2 pages)

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4. a) i) Explain environmental conditions required for the preparation of parenteral products. 8

ii) Describe in brief the various tests which are required to be done for the evaluation of parenteral products. 6

OR

b) i) Explain different types of containers used in parenteral preparation. 7

ii) Write a note on formulation of injections. 7

5. a) i) Classify aerosols enumerate their merits and demerits. 7

ii) Explain different types of systems used in the formulation of aerosols. 7

OR

b) Write in detail quality control tests used for aerosols and how the stability studies are carried out for aerosol formulation. 14



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**FACULTY OF TECHNOLOGY**

**B.Pharmacy III Year I Semester (Supplementary) Examination, April/May 2011**

**PHARMACEUTICAL TECHNOLOGY**

**(Pharmaceutics - II)**

Time : 3 Hours]

[Max. Marks : 70

Answer **all** questions.

All questions carry equal marks.

1. (a) (i) Briefly explain the manufacture of hard gelatin capsule shell. 7  
(ii) Explain the formulation and filling process of hard gelatin capsules. 7

Or

- (b) (i) Describe manufacture and quality control tests for soft gelatin capsule. 8  
(ii) Describe the advantages and disadvantages of soft and hard gelatin capsules. 6

2. (a) (i) Define the term 'emulsifying agent'. Write the qualities of an ideal emulsifying agent. How will you classify the emulsifying agent? 7  
(ii) Write note on stability of emulsion. 7

Or

- (b) (i) What are 'Suspensions'? Discuss the different types of suspensions. How will you evaluate the suspensions. 8  
(ii) Differentiate between flocculated and Non-flocculated suspension. 6

3. (a) Explain in detail quality control tests for the coated and uncoated tablets with the specifications as stated in pharmacopeias. 14

Or

- (b) Explain different stages in sugar coating of a compressed tablets. 14

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4. (a) Write in detail quality control tests for parenterals. 14

Or

- (b) (i) Explain the formulations & manufacture of ophthalmic ointments. 7  
(ii) Give note on buffers, viscosity and isotonicity of ophthalmic solutions. 7

5. (a) Write in detail quality control tests of aerosols and how are the stability studies of aerosol formulations carried out. 14

Or

- (b) What are the packing materials used for aerosol? Explain in detail. 14
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**FACULTY OF TECHNOLOGY**

**B.Pharmacy III Year I Semester (Supplementary) Examination, April/May 2011**

**PHARMACOGNOSY - II**

Time : 3 Hours]

[Max. Marks : 70

Answer **all** questions

All questions carry equal marks.

1. (a) List the drugs containing tropane alkaloids and give the biological source, chemical constituents and uses of any two.  
(b) With a neat labelled diagram describe the morphological and microscopical characters of Rounoyia.  
(c) Give the adulterants to following drugs and give its distinguish characters from authentic drug.  
(i) Cinchona (ii) Nuxvomica (6+5+3)  
Or  
(a) Write a note on gradient  $p^H$  technique in isolation of alkaloids.  
(b) Discuss the chemistry and therapeutic uses of opium alkaloids.  
(c) Give the chemical structure of  
(i) Ephedrine (ii) Quinine (iii) Emetine (5+6+3)
2. (a) Name two glycosidal drugs used in diabetics and give Biological Source, Chemical Constituents and uses.  
(b) With neat labelled diagram describe the microscopy of Liquorice.  
(c) Give the chemical structure of  
(i) Digitonin (ii) Gintipicroside (iii) Barbaloin (6+5+3)  
Or  
(a) Discuss the chemistry of anthraquinone glycosides. Describe the chemistry and Therapeutic uses of Senna.  
(b) Give the biological source, chemical constituents and uses of  
(i) Puncture Vine (ii) Mandukparni  
(c) Give chemical structure of  
(i) Digoxin (ii) Diosgenin (iii) Strophanthidin (5+6+3)

[P.T.O.]

3. (a) What are resins and discuss the properties and classification of resins.  
(b) Discuss the chemistry and Therapeutic uses of artemisia.  
(c) Describe the structure, isolation and estimation of Caffeine. (5+5+4)

Or

- (a) Discuss the chemistry and classification of volatile oils.  
(b) Give the Biological source, Chemical structure and uses of  
(i) Ferulic acid (ii) Guggulsterone.  
(c) Write a note on Umbelliferous fruits. (5+6+3)
4. (a) Describe the role of growth regulations in plant tissue culture.  
(b) Write note on clonal propagation. (8+6)

Or

- (a) Write a note on sterilization of explant.  
(b) Describe briefly the role of inorganic and organic supplements in culture media.  
(c) What are advantages of immobilization technique. (3+7+4)
5. (a) Translate Madhur, Laven, Tikta and Kasaya to English.  
(b) Describe various Ayurvedic formulations and narrate their method of preparation. (2+12)

Or

- (a) Discuss the problems in standardization of Herbal medicines.  
(b) What are regulatory requirements of Herbal medicines.  
(c) Discuss the principle of Ayurvedic system of medicines. (4+3+7)
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FACULTY OF TECHNOLOGY

B.Pharmacy III Year I Semester (Supplementary) Examination, April/May 2011

PHARMACOLOGY - I

Time : 3 Hours]

[Max. Marks : 70

Answer **all** questions.

All questions carry equal marks.

1. (a) What are various mechanisms of drug action? 14  
Explain about 'receptor' mediated drug action in detail.  
Or  
(b) Write about the following: 7 + 7
  - (i) Dose- response relationship
  - (ii) Drug metabolism.
2. (a) (i) Classify adrenergic blocking drugs. Discuss the Pharmacological actions and side effects of  $\beta$ - blockers. 14  
(ii) Write about adrenergic receptors.  
Or  
(b) Classify cholinesterase inhibitors . Write their pharmacological and toxicological effects. Discuss the pharmacology of atropine. 14
3. (a) (i) Write briefly about various neurotransmitters in CNS. 14  
(ii) Write about tricyclic anti- depressants. 7 + 7  
Or  
(b) Write the Mechanism of action, Adverse effects and therapeutic uses of 14
  - (i) Acetyl salicylic acid
  - (ii) Lignocaine
  - (iii) Levodopa
  - (iv) MAO inhibitors
4. (a) (i) Write about broncho dilators 8 + 6  
(ii) Explain the mechanism of action of  
(A) digitalis (B) Verapamil

Or

[P.T.O.]



(b) What is hypertension? Classify drug used in treatment of hypertension. Discuss the Pharmacology, Adverse effects, M.O.A. and therapeutic uses of ACE inhibitors. 14

5. (a) Classify diuretics. Write the Mechanism of action and uses of following 14

- (i) Spironolactone (ii) Loop diuretics

Or

(b) (i) Write about proton pump inhibitors 7 + 7

(ii) Write about anti emetics

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**FACULTY OF TECHNOLOGY**

**B.Pharmacy III Year I Semester (Supplementary) Examination, April/May 2011**

**MEDICINAL CHEMISTRY - I**

Time : 3 Hours]

[Max. Marks : 70

*Answer all Questions.*

*All questions carry equal marks.*

1. (a) (i) Discuss in detail the pro - and soft drug approach in drug design with suitable examples. 8
- (ii) Explain how steric features of drugs influence the biological action of drug molecule. 6

Or

- (b) (i) Explain how Hydrogen bonding and Ionization influence the biological action of a drug molecule. 8
- (ii) Discuss in detail phase II reactions involved in drug metabolism. 6

2. (a) (i) Classify Cholinergic blocking agents with suitable examples. Give the metabolism of prazocin. 6
- (ii) Write the steps involved in the synthesis of the following: 8
- (A) Dicyclomine HCl
- (B) Mecamylamine HCl.

Or

- (b) (i) Classify Adrenergic agents. Write a note on Acetyl choline esterase inhibitors. Write the synthesis of Atenolol. 9
- (ii) Write the structure, mechanism of action and uses of Isoproterenol. 5

3. (a) (i) Write the steps involved in the synthesis of the following: 6
- (A) Clonidine
- (B) Diltiazem
- (ii) Write the mechanism of action and uses of captopril. Write the metabolism path way for Antiarrhythmic drugs. 8

Or

[P.T.O.]

- (b) (i) (A) Classify Anti-hyperlipidemic agents with suitable examples. 4  
(B) Discuss in detail mechanism of action of cardiac glycosides. 4  
(ii) Write the structural activity relationship for Diltiazem and verapamil. 6
4. (a) (i) Write the structural features necessary for molecule to act as Hypoglycemic agents. 8  
(ii) Write a note on Positive Inotropic agents with suitable examples. 6

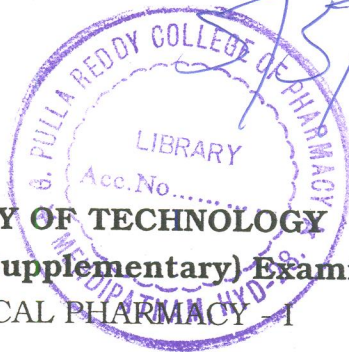
Or

- (b) (i) Outline the synthesis of the following drugs:  
(A) Amrinone 4  
(B) Furosemide 4  
(C) Amiloride 3  
(ii) Write a note on anti-platelet drugs. 4
5. (a) (i) Write the structure, synthesis, General mechanism and uses of the Warfarin. 6  
(ii) Write the structural, activity relationship and mechanism of action for proton pump inhibitors. 8

Or

- (b) (i) Give the structure of  $H_2$  - antagonists. Discuss in detail mechanism of action for  $H_2$  - Antagonists. 8  
(ii) Write the structure and chemical name of the following:  
(A) Chlorpheniramine  
(B) Citrizine  
(C) Omeprazole: 6
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**FACULTY OF TECHNOLOGY**

**B.Pharmacy III Year I Semester (Supplementary) Examination, April/May 2011**

**PHYSICAL PHARMACY - I**

Time : 3 Hours]

[Max. Marks : 70

Answer **all** questions.

All questions carry equal marks.

1. (a) What is Polymorphism? Give four examples of drugs exhibiting polymorphism. Write its significance. 7

(b) Write a brief note on :

(i) X ray diffraction

(ii) Molar refraction. 3+4

Or

(c) What is phase rule? Explain the phase diagram of three component system. 8

(d) Write a note on

(i) Condensed systems

(ii) V waals equation for real gases. 6

2. (a) State law of conservation of energy & its application. 5

(b) Derive expressions for isothermal reversible expansions of an ideal gas and maximum work done in reversible expansion. 6

(c) Define specific heat, sensible heat and latent heat. 3

Or

(d) Write a note on Gibbs free energy. 5

(e) Define enthalpy and entropy. 2

(f) Write a note on molar heat capacity at constant pressure and constant volume. Derive a relationship between them. 7

3. (a) What is osmotic pressure? How is it measured? 5

(b) Explain the ionisation of polyprotic electrolytes. 6

(c) Write the Debye Huckel equations for determining activity coefficient. 3

Or

- (d) Ferrous sulfate solution was prepared by adding 41.5 g of  $\text{FeSO}_4$  to water to make 1000 ml at  $18^\circ\text{C}$ . Density of solution is 1.0375. Molecular weight of  $\text{FeSO}_4$  is 151.9. Calculate (i) molarity (ii) molality (iii) mole fraction of  $\text{FeSO}_4$ . 6
- (e) What are ampholytes? Explain their ionisation. 5
- (f) What is activity? 3
4. (a) What is buffer capacity? Write Vanslyke's equation for buffer capacity & maximum buffer capacity. 4
- (b) Explain White Vincent method for adjusting isotonicity. Prepare 30 ml of 1% solution of procaine hydrochloride isotonic with body fluids.  $E = 0.21$  (Sodium Chloride equivalent) 8
- (c) What is common ion effect? 2
- Or
- (d) Write a note on Physiological buffers. 4
- (e) Derive buffer equation for a weak acid & w. base. 6
- (f) What are isotonic, hypertonic and hypotonic solutions? Explain their importance. 4
5. (a) Write notes on :
- (i) Ion sensitive electrodes 5
- (ii) Concentration Cells 5
- (iii) Catalyst. 4
- Or
- (b) How do you measure  $\text{p}^{\text{H}}$  using hydrogen electrode. 7
- (c) Write notes on :
- (i) Oxidation reduction electrode
- (ii) Measurement of Emf. 4+3
-