

**FACULTY OF PHARMACY****B. Pharmacy 3/4 I – Semester (Main) Examination, November 2015****Subject : Pharmacognosy – II****Time : 3 hours****Max. Marks : 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Write the systemic pharmacognostic study of Opium? 5  
 b) Write the chemical constituents, uses and adulterants of  
 A) Nuxvomica B) Vinca C) Ephdra 9  
**OR**  
 c) Describe the microscopical characters of 9  
 i) Rauwolfia ii) Cinchona iii) Vasaka  
 d) Define alkaloids and write the classification with suitable examples. 5
- 2 a) Write the Biological source, chemistry, therapeutic uses and adulterants of Senna, Ashwagandha? 10  
 b) Write the informative note on bitter glycosides. 4  
**OR**  
 c) What are cardiac glycosides, classify and write the chemistry, mechanism of action of digitalis? 6  
 d) Write a brief note on Indian Ginseng and Gymnema. 8
- 3 a) Describe the Isolation and estimation of quinine from cinchona. 6  
 b) Write the chemical constituents and uses of  
 i) Artemisia ii) Taxus 8  
**OR**  
 c) Describe the estimation of sennosides from senna. 6  
 d) What are Resins, classify with examples? 5  
 e) Write the Biological source, chemical constituents of clove. 3
- 4 a) Define Tissue culture? Write about sterilization technique applicable to plant tissue culture. 5  
 b) Write the applications of plant tissue culture with suitable examples. 9  
**OR**  
 c) Write a brief note on historical development of plant tissue culture technology. 6  
 d) Note the different culture techniques. Explain the process of immobilization technique with applications. 8
- 5 a) Write in detail quality control of Raw materials. 7  
 b) Give the preparation of Aristavas and Ghritams. 7  
**OR**  
 c) Write the informative note on discovery of new drugs from natural source. 8  
 d) Write about the status and practice of Herbal medicine in India. 6

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## FACULTY OF PHARMACY

B. Pharmacy 3/4 I – Semester (Main) Examination, November 2015

Subject: Medicinal Chemistry – I

Time: 3 Hours

Max.Marks: 70

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

- 1 a) Explain with examples the importance of bioisosterism in relation to biological activity. 7  
 b) What do you mean by soft drug approach in drug design? How is it achieved? 7  
**OR**  
 c) Discuss with suitable examples the influence of protein binding on biological activity. 7  
 d) Explain with examples the factors affecting the drug metabolism. 7
- 2 a) Classify adrenergic drugs with examples, write the mode of action, SAR and outline the synthesis of Atenolol. 2+3+5+4  
**OR**  
 b) What are cholinergic drugs? Classify them with examples, discuss the mode of action, therapeutic uses and outline the synthesis of dicyclomine. 2+3+3+2+5
- 3 a) What are antihypertensive agents? Classify them with examples, discuss the mode of action and SAR of ACE inhibitors. 2+3+3+3  
 b) Write the synthesis and specific uses of clonidine. 3  
**OR**  
 c) What are anti-hyperlipidemic agents? Classify them with examples, write the mode of action and their SAR. 2+2+3  
 d) Write the synthesis and uses of Clofibrate and Diltiazem. 3+4
- 4 a) What are diuretics? Classify them with examples, discuss the mode of action and SAR of thiazide diuretics. Outline the synthesis of Acetazolamide and Hydrochlorthiazide. 1+2+2+3+3+3  
**OR**  
 b) Classify oral hypoglycemic agents with examples, write their mode of action, SAR and add a note on the current status of the management of NIDDM. Write the synthesis and uses of Glyclizide. 2+3+3+3+3
- 5 a) Classify H1-receptor antagonists with examples, write the mode of action and SAR. Outline the synthesis and uses of Chlorpheniramine and Cetrizine. 3+2+3+3+3  
**OR**  
 b) Write a note on:  
 i) Anticoagulants 7  
 ii) Proton-pump inhibitors. 7

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**FACULTY OF PHARMACY****B. Pharmacy 3/4 I-Semester (Main) Examination, November 2015****Subject : Pharmaceutical Technology (Pharmaceutics-II)****Time : 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Explain the properties and selection of preservatives and antioxidants in pharmaceutical preparations. (8)
- (b) Write a note on hydrocollids. (6)
- OR**
- (c) Describe in detail composition and the manufacture of soft gelatin capsules. (10)
- (d) Describe quality control tests for soft gelatin capsule. (4)
- 2 (a) Explain different types of method of preparation of suspension. Describe in detail Stoke's law and evaluation of suspensions. (14)
- OR**
- (b) Explain the concept of multiple emulsion. (4)
- (c) What are various formulation factors affecting the manufacture of emulsions? (6)
- (d) Explain various identification tests for pharmaceutical emulsions. (4)
- 3 (a) Mention different types of tablets and their advantages. Explain the role of excipients used in the tablet formulation. Mention the quality control of uncoated tablets. (14)
- OR**
- (b) Explain the purpose of coating a tablet. Mention different types of coating process. (4)
- (c) Describe in detail film coating process and its defects. (10)
- 4 (a) Define large volume and small volume parenterals. Compare and contrast different types of containers used in packing of parenterals. (10)
- (b) Describe LAL test. (4)
- OR**
- (c) Explain formulation and manufacture of eye drops. (9)
- (d) Explain official labeling requirements according to drugs and cosmetics act for eye formulations. (5)
- 5 (a) Mention the advantages and disadvantages of different types of propellants. (5)
- Explain in detail formulation of aerosols. (9)
- OR**
- (b) Describe glass as a packing material. (7)
- (c) Describe tests for alkalinity of glass. (7)

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**FACULTY OF PHARMACY****B. Pharmacy 3/4 I – Semester (Main) Examination, November 2015****Subject : Pharmacology - I****Time : 3 hours****Max. Marks : 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Write about different types of biotransformation reactions with examples. 14  
**OR**  
 b) Write about various types of receptors, their interaction with drugs leading to pharmacological activity with suitable examples. 14
- 2 a) Explain the mechanism of action, SAR and therapeutic uses of 7+7  
 i)  $\beta$ -adrenergic blockers ii) Anti-cholinesterases  
**OR**  
 b) Classify the Parasympathomimetic agents and write about the pharmacology of Acetyl choline 14
- 3 a) Write a short note on : 14  
 i) Hypnotics and sedatives ii) Local anesthetic agents  
**OR**  
 b) i) Give the classification of Anti-Parkinson's agents 5+9  
 ii) Discuss the mechanism of action, adverse effects and therapeutic uses of any three antiepileptic drugs
- 4 a) Write about the following : 7+7  
 i) Bronchodilators  
 ii) Drugs used in the treatment of shock  
**OR**  
 b) Define Hypertension, classify the anti-hypertensive agents and write about the pharmacology of Calcium channel blockers and ACE inhibitors. 2+6+6
- 5 a) Write about the following : 7+7  
 i) Anti-diarrhoeal agents  
 ii) Pharmacology of Purgatives  
**OR**  
 c) i) Write the classification of Anti-ulcer agents 5+9  
 ii) Discuss the mechanism of action, adverse effects and therapeutic uses of Rantidine, Ondonsetron and Acetazolamide

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## FACULTY OF PHARMACY

B. Pharmacy 3/4 I-Semester (Main) Examination, November 2015

Subject : Physical Pharmacy - I

Time : 3 Hours

Max. Marks: 70

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

- 1 (a) How do you liquefy gases? Write its application in the formulation of aerosols. (9)
- (b) Define the terms refractive index and molar refraction. Write their applications. (5)
- OR**
- (c) Write Gibb's phase rule. Explain phase diagram for a system containing one component. (7)
- (d) Write a short note on XRD. (4)
- (e) Write the Vander Waals equation for real gases and explain the terms therein. (3)
- 2 (a) State and explain first law of thermodynamics. (6)
- (b) State and explain second law of thermodynamics. Write its applications with relevant equations and graphs. (8)
- OR**
- (c) Define : (5)
- (i) Specific heat (ii) Latent heat (iii) Enthalpy (iv) entropy (v) Sensible heat (5)
- (d) State laws of thermodynamics. (3)
- (e) Explain Hess's law with relevance to heat of formation and heat of combustion. (6)
- 3 (a) Define Raoult's law. What are ideal and real solutions. (Explain with vapor pressure curves). (7)
- (b) Write the Debye Huckel's equations for determining activity coefficient. (3)
- (c) What are ampholytes. Explain their ionization. (4)
- OR**
- (d) How do you determine elevation of boiling point? Explain the choice of colligative properties in molecular weight determination. (7)
- (e) An aqueous solution of FeSO<sub>4</sub> was prepared by adding 41.5 g of FeSO<sub>4</sub> to enough water to make 1000 ml. Density of solution – 1.0375 mol. Wt of FeSO<sub>4</sub> – 151.9. Calculate (i) Molarity (ii) Molality (iii) mole fraction of FeSO<sub>4</sub> and water and percentage by weight of FeSO<sub>4</sub>. (5)
- (f) What is mean by ionic strength of a solution? (2)
- 4 (a) Derive Henderson – Hassebach equation for a weak acid. (5)
- (b) What is the pH of 0.1m acetic acid solution. PKa=4.76 ? What is the pH after addition of 0.1m sodium acetate. (4)
- (c) Describe the applications of pH and buffer solution with examples. (5)
- OR**
- (d) Explain various methods to adjust isotonicity and pH. (9)
- (e) Write a note on pH indicators. (3)
- (f) Write the equation for buffer capacity. (2)
- 5 (a) Explain Daniell cell. (5)
- (b) How do you determine PKa using potentiometry? (5)
- (c) Explain any two oxidation reduction reaction in pharmacy. (4)
- OR**
- (d) How do you determine pH using glass electrode? (7)
- (e) Write a note on catalyst. (7)

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**FACULTY OF PHARMACY**

**B.Pharmacy 3/4 I-Semester (Suppl.) Examination, April / May 2015**

**Subject : Pharmacology - I**

**Time : 3 Hours**

**Max. Marks: 70**

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

- 1 (a) Classify receptors. Explain in detail about G-protein coupled receptors. (14)  
**OR**  
(b) Explain in detail about phase-I biotransformation of drugs with examples.
- 2 (a) Classify sympathomimetics and a note on  $\beta$ -adrenergic blocking agents. (14)  
**OR**  
(b) Classify parasympatholytics and explain the pharmacological actions of Atropine. (9)  
(c) Explain the mechanism of Action, Adverse effects and therapeutic use of anticholinestrases. (5)
- 3 (a) Write a note on : (4+5+5)  
(i) Hypnotic agents  
(ii) Local anaesthetics  
(iii) Analgesics  
**OR**  
(b) Define Epilepsy. Classify antiepileptic drugs. Write the mechanism of Action, adverse effects and therapeutic uses of Benzodiazepine and sodium valproate. (14)
- 4 (a) Define bronchial asthma. Classify drugs used in the treatment of Asthma. (7)  
(b) Classify antianginal drugs. Write about the mechanism of action and therapeutic uses of Nitrates. (3+4)  
**OR**  
(c) Define arrhythmia. Classify Antiarrhythmic agents. Explain mechanism of action, adverse effects and therapeutic uses of any two drugs of different class. (14)
- 5 (a) Write short note on : (7+7)  
(i) Antiemetic agents  
(ii) High ceiling diuretics  
**OR**  
(b) Classify anti ulcer agents. Write the mechanism of action. Pharmacological actions and therapeutic uses of Anti histaminics and ulcer protectants. (14)

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**FACULTY OF PHARMACY**

**B. Pharmacy 3/4 I – Semester (Supplementary) Examination, April 2015**

**Subject : Medicinal Chemistry - I**

**Time : 3 hours**

**Max. Marks : 70**

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

- 1 a) Explain physicochemical properties which influence biological activity. 7  
b) Write the importance of bio-isosterism in drug design. 7  
**OR**  
b) Discuss about prodrug approach in drug design. 7  
d) Give a note on drug distribution and protein binding. 3+4
- 2 a) Explain S.A.R. of Acetyl cholinesterase inhibitors. 6  
b) Give the structure, synthesis and MoA of following : 4+4  
A) Dicyclomine HCl B) Carbachol  
**OR**  
c) Write a note on skeletal muscle relaxants. 6  
d) Discuss S.A.R. of Adrenomimetics. 8
- 3 a) Classify anti arrhythmic drugs with suitable example and explain S.A.R. in detail. 2+6  
b) What are antihypertensives with examples? Give the synthesis of captopril and clonidine. 2+2+2  
**OR**  
c) Write a note on Anti-hyperlipidemic agents. 5  
d) Write a note on Cardiac glycosides and their mechanism of action. 5  
e) Give the structure and synthesis of verapamil and dipyridamole. 2+2
- 4 a) Write a note on positive Inotropic agents. 5  
b) Give the structure, synthesis and MoA of following : 3+3+3  
1) Amiloride 2) Tolbutamide 3) Propylthiouracil  
**OR**  
c) What are diuretics and give the classification with suitable examples. 1+2  
d) Add a note on oral hypoglycemic agents. 5  
e) write a short note on Immunomodulator drugs. 6
- 5 a) Write the structural activity relationship and MoA of proton pump inhibitors. 8  
b) Give the synthesis and MoA of Ranitidine and chlorpheniramine. 3+3  
**OR**  
c) Discuss about coagulants and anti-coagulants. 2+4  
d) Give the structure, synthesis and MoA of Diphenhydramine and Omeprazole. 4+4

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**FACULTY OF PHARMACY**

**B. Pharmacy III / I – Semester (Suppl.) Examination, April 2015**

**Subject: Pharmaceutical Technology**

**(Pharmaceutics – II)**

**Time: 3 Hours**

**Max.Marks: 70**

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

- 1 a) What do you mean by “GRAS”? Explain the ideal properties of pharmaceutical excipients? Mention few properties of hydrocolloids? 8  
b) Mention two antioxidants, preservatives and surfactants with their concentration used in pharmaceutical preparation. 6  
**OR**  
c) Describe any two large scale hard gelatin capsule filling methods. What are the different sizes of hard gelatin capsules available? 10  
d) Write the composition of soft gelatin capsule? Define “base adsorption”. 4
- 2 a) Explain theory of suspensions. Describe in detail evaluation of suspensions. 14  
**OR**  
b) What are the various formulation factors affecting the manufacture of emulsions? 9  
c) Describe quality control tests for pharmaceutical emulsions. 5
- 3 a) Mention different types of tablets and their advantages. Explain the properties of diluents and disintegrants used in the tablet formulation with examples. Mention the quality control of enteric coated tablets. 14  
**OR**  
b) Mention different types of pharmaceutical coating process. Explain sugar coating process in detail. 9  
c) Describe coating defects. 5
- 4 a) Explain the various steps involved in the process of manufacture of small volume parenterals. Mention quality control tests of parenterals. 10  
b) Describe SHAM test. 4  
**OR**  
c) Explain the labelling requirements for eye preparations according to Drugs and Cosmetics Act. 5  
d) Explain the quality control tests for eye preparations. 9
- 5 a) List the disadvantages and advantages of different types of propellants. Name some commonly used propellants. 5  
b) Explain in detail formulation of aerosols. 9  
**OR**  
c) Describe plastic as a pharmaceutical packing materials. 7  
d) Describe quality control tests for plastic. 7

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**FACULTY OF PHARMACY****B. Pharmacy III Year I – Semester (Suppl.) Examination, April 2015****Subject: Physical Pharmacy – I****Time: 3 Hours****Max.Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) i) Explain the postulates of the kinetic molecular theory. (5)  
ii) What is X-ray diffraction and how is it used in the pharmaceutical field? (5)  
iii) State and explain Gibb's phase rule. (4)
- OR**
- (b) i) Explain any two methods of achieving liquefaction. (5)  
ii) What is the effect of intermolecular forces on the melting point of a solid. (5)  
iii) Explain the phase diagram of a two component system. (4)
- 2 (a) i) Write about entropy and disorder of a system and its application in pharmaceutical systems. (6)  
ii) State and explain first and second law of thermodynamics. (8)
- OR**
- (b) i) Explain heat of formation and heat of combustion. (6)  
ii) Write about Hess law of constant heat summation and give its applications. (8)
- 3 (a) i) Differentiate between ideal and real solutions. (5)  
ii) Discuss the modern theory of strong electrolytes. (5)  
iii) What is Sorensen's pH scale. (4)
- OR**
- (b) i) What are colligative properties? Explain freezing point depression as a colligative property and its application. (8)  
ii) Derive the equation for determination of basicity constant and write its usefulness. (6)
- 4 (a) i) What is buffer? Derive the buffer equation to prepare an acidic buffer system. (8)  
ii) What is the molar ratio salt/acid, required to prepare a buffer of pH 5.76? pKa of the acid to be selected for this is 4.76. (6)
- OR**
- (b) i) What is buffer? Derive the buffer equation to prepare an acidic buffer system. (8)  
ii) To a buffer system containing 0.1 mole each of acetic acid and sodium acetate, 0.01 mole of sodium hydroxide is added (pH of buffer system is 4.76). Calculate the change in conc. of sodium acetate. (6)
- 5 (a) i) Explain the relationship of EMF and  $H^+$  ion concentration to determine the pH of a solution by pH meter. (8)  
ii) What are ion selective electrodes? Write about the fluoride ion selective electrode. (6)
- OR**
- (b) i) Discuss the application of oxidation – reduction potentials of some compounds to be used as stabilizers in drug formulations. (7)  
ii) What is catalysis and catalyst and explain the factors affecting the catalyst? (7)

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**FACULTY OF PHARMACY****B.Pharmacy 3/4 I-Semester (Supplementary) Examination, April 2015****Subject : Pharmacognosy - II****Time : 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Write the systemic pharmacognostic study of cinchona. (6)  
(b) Give the adulterants and distinguish characters of nuxvomica and Rauwolfia. (4)  
(c) Write the chemical constituents with structures and uses of Vinea. (4)
- OR**
- (d) Write the sources, chemistry and therapeutic properties of Opium and Kurchi. (8)  
(e) Define and classify alkaloids with examples. Describe alkaloidal precipitating reagents and their utility. (6)
- 2 (a) With a neat labeled diagram, describe the morphological and microscopical characters of senna. (6)  
(b) Write the Biological source, chemical nature and uses of (8)  
(i) Digitalis (ii) gymnema
- OR**
- (c) Define and classify the glycosides with suitable examples. (6)  
(d) Write the Biological source, chemical nature and uses of (8)  
(i) Ashwagandha (ii) Momordica
- 3 (a) Write the isolation and estimation of caffeine from Tea. (6)  
(b) Write the chemical nature, identification test and uses of (8)  
(i) Cinnamon (ii) Artemisia
- OR**
- (c) Write the isolation and estimation of sennosides from Senna. (7)  
(d) Write the chemical nature and uses of : (7)  
(i) Taxus (ii) Turmeric
- 4 (a) Write a note on biotransformation. (5)  
(b) Discuss the nutritional requirements of an Ideal plant tissue culture medium. (9)
- OR**
- (c) Give the details of biomedicinals produced at higher yields by plant tissue culture. (9)  
(d) Explain the process of organogenesis and its utility. (5)
- 5 (a) Write about quality control and standardization of Raw materials. (9)  
(b) Give the preparation of Asawa and Bhasma. (5)
- OR**
- (c) Write the practice and regulations of herbal medicines in India. (8)  
(d) Describe different dosage forms prepared in Ayurveda . Write the preparation of Ghrityams. (6)