

**FACULTY OF PHARMACY****B. Pharmacy 3/4 I – Semester (Main) Examination, October 2016****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 vehicles and hydrocolloids in pharmaceutical preparations. 8  
 b) Describe in detail selection of excipients used in the preparation for liquid orals. 6  
**OR**  
 c) Explain the different stages of manufacturing of hard gelatin capsules. 6  
 d) Describe the method for manufacturing of soft gelatin capsule and its quality control. 8
- 2 a) Explain Stoke's law. What are the factors affecting stability of suspensions. 6  
 b) Explain formulation and quality control of suspension. 8  
**OR**  
 c) Discuss in brief formulation and quality control of emulsions. 7  
 d) Write a note on shelf life of emulsion. 7
- 3 a) Classify tablets. Mention the advantages of tablets. Explain the various excipients used in the preparation of tablets. 8  
 b) Explain in detail quality control tests of tablets. 6  
**OR**  
 c) Classify different types of granulation process. Describe in detail single punch and multistation rotary press compression process. 10  
 d) Explain defects of coating. 4
- 4 a) What are pyrogens? Explain "sham" testing in detail. 7  
 b) Explain different filling methods of parenteral preparations. 7  
**OR**  
 c) Write a note on injectable suspension. 6  
 d) Explain quality control of eye ointments. 5  
 e) What are the instructions to be printed on the ophthalmic products container? 3
- 5 a) Write a detail formulation of aerosols and describe in detail packaging materials and methods used in the manufacture of aerosols. 14  
**OR**  
 b) Explain in detail glass and plastic as pharmaceutical packaging systems. Describe in detail quality control tests of glass. 14

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**FACULTY OF PHARMACY****B. Pharmacy 3/4 I – Semester (Main) Examination, November 2016****Subject: Pharmacology – I****Time: 3 Hours****Max.Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Write in detail about various biotransformation reactions with examples. 14  
**OR**  
 b) Explain in detail about the advantages and disadvantages of different routes of drug administration. 14
- 2 a) Write the pharmacological actions of acetyl choline. 7  
 b) Explain the various therapeutic uses and adverse reactions of (S)–adrenergic blockers. 7  
**OR**  
 c) Explain the pharmacological actions and therapeutic uses of the following:  
 i) Acetylcholinesterase inhibitors. 7  
 ii) Adrenergic drugs 7
- 3 a) Classify anti-epileptic agents and explain the mechanism of action, adverse reactions and therapeutic uses of any three classes of drugs. 5+9  
**OR**  
 b) Write the classification of non-steroidal anti-inflammatory agents and explain the details of any three classes of drugs. 5+9
- 4 a) Define hypertension. Classify the antihypertensive agents with examples. Write about the mechanism of action and adverse reactions of ACE inhibitors and calcium channel blockers. 2+6+6  
**OR**  
 b) Write short notes on:  
 i) Bronchodilators 7  
 ii) Antihyperlipidemics 7
- 5 a) Classify the agents used in treatment of peptic ulcer disease. Write about the pharmacological actions and therapeutic uses of Omeprazole and Rantidine. 4+6  
 b) Write short notes on osmotic diuretics. 4  
**OR**  
 c) Write about the following:  
 i) Anti-diarrhoeal agents 7  
 ii) Anti-emetic agents 7

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FACULTY OF PHARMACY

B. Pharmacy 3/4 I – Semester (Main) Examination, November 2016

Subject: Physical Pharmacy – I

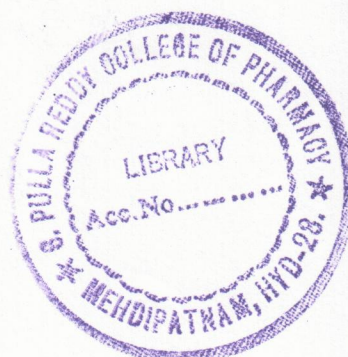
Max.Marks: 70

Time: 3 Hours

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

- 1 a) Write a note on liquefaction of gases. Write its application in the formulation of aerosols. 8  
b) What is polymorphism? Explain its significance in pharmaceutical formulations with suitable examples. 6
- OR
- c) State Gibb's phase rule. Explain the phase diagram for one component system. 8  
d) Write a detailed note on liquid crystalline state. 6
- 2 a) State and explain first law of thermodynamics. 5  
b) Derive an expression for maximum work done in isothermal reversible expansion of an ideal gas. 5  
c) Write a note on free energy functions and its application. 4
- OR
- d) Derive an expression to determine efficiency of steam engine. 10  
e) Explain Hess's law of constant heat summation. 4
- 3 a) What are ideal and real solutions? Explain derivations from Raoult's law. 8  
b) Explain ionization of polyprotic electrolytes. 6
- OR
- c) What are colligative properties? Explain the choice of colligative properties in molecular weight determination. 6  
d) Explain "activity" and "activity coefficient". Write Debye Huckel's equations. 8
- 4 a) Derive buffer equation for a weak acid. Add a note on common ion effect. 8  
b) Explain the influence of buffer capacity and pH on tissue irritation. 6
- OR
- c) How do you prepare pharmaceutical buffer. 7  
d) Explain class I methods for adjusting isotonicity. 7
- 5 a) Explain ion sensitive electrodes. 7  
b) Write about different types of catalysts. Explain the factors affecting catalysis. 7
- OR
- c) Explain Daniell cell. 7  
d) Write the applications of oxidation reduction reactions in pharmacy. 7

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## FACULTY OF PHARMACY

B. Pharmacy 3/4 I – Semester (Main) Examination, October 2016

Subject: Medicinal chemistry – I

Time: 3 Hours

Max.Marks: 70

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

- 1 a) Write about bioisosterism and steric factors of drugs. 7  
 b) Explain the concept of pro and soft drug approach. 7  
**OR**  
 c) Explain about the following terms with examples  
 i) Lipophilicity  
 ii) Partition coefficient  
 iii) Solubility  
 iv) Ionization 4+3+4+3
- 2 a) Explain S.A.R of adrenergic blocking agents. 8  
 b) Write the synthesis and mechanism of action of mecamylamine HCl and Meprobamate. 6  
**OR**  
 c) Give the structure, synthesis and mechanism of action of following: 7  
 i) Isoproterenol  
 ii) Salbutamol  
 d) Add a note on neuromuscular blocking agents. 7
- 3 a) Classify antihypertensive drugs with examples and SAR of ACE inhibitors. 9  
 b) Explain mechanism of action and uses of cardiac glycosides. 5  
**OR**  
 c) Define and classify antihyperlipidemic drugs with examples and SAR of statins. 7  
 d) Give the synthesis of following  
 i) Diltiazem 3  
 ii) Captopril 4
- 4 a) Define and classify diuretics with examples. Write the mechanism of action and therapeutic uses of carbonic anhydrase inhibitors. 7  
 b) Discuss the mechanism of action and limitations of oral hypoglycemic agents. 7  
**OR**  
 c) Write a note on positive inotropic agents. 7  
 d) Give a note on immuno suppressants and immuno stimulants. 7
- 5 a) Classify anti-histaminic agents. Discuss in detail mechanism of action of H<sub>1</sub> antagonists. 14  
**OR**  
 b) Give a note on proton pump inhibitors. 7  
 c) Discuss in detail about coagulants and anticoagulants. 7

**FACULTY OF PHARMACY****B. Pharmacy 3/4 I – Semester (Suppl.) Examination, April 2016****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 partition-coefficient in relation to biological activity of drugs. 7  
 b) What are prodrugs? How are they obtained? Mention their merits and demerits. 7  
**OR**  
 c) Discuss with suitable examples the influence of steric features of drugs on biological activity. 7  
 d) Discuss with examples the importance and significance of Phase-II reactions. 7
- 2 a) Classify ganglionic blocking agents with examples, write the mode of action, SAR and outline the synthesis of Mecamylamine. 2+3+5+4  
**OR**  
 b) Write short notes on:  
     i) Adrenergic blocking agents 7  
     ii) Cholinergic blocking agents 7
- 3 a) What are anti-arrhythmic agents? Classify them with examples, discuss the mode of action and SAR. 2+3+3+3  
 b) Write the synthesis and specific uses of Nifedipine. 3  
**OR**  
 c) Give an account of:  
     i) Cardiotonic drugs 7  
     ii) Vasodilators 7
- 4 a) Outline the synthesis and uses of (a) Amiloride (b) Tolbutamide (c) Propylthiouracil 5+5+4  
**OR**  
 b) Write briefly on (a) Thyroid agents (b) Immunosuppressant. 7+7
- 5 a) Classify H<sub>2</sub>-receptor antagonists with examples, write the mode of action and SAR. Outline the synthesis and uses of Ranitidine. 3+2+3+6  
**OR**  
 b) Outline the synthesis and uses of (a) Omeprazole (b) Cetrizine (c) Diphenhydramine. Write a note on anticoagulants. 6+5+3

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**FACULTY OF PHARMACY****B. Pharmacy 3/4 I – Semester (Supplementary) Examination, April 2016****Subject : Pharmacognosy - II****Time : 3 hours****Max. Marks : 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Describe the microscopy of Cinchona and Rauwolfia. 5+9  
 b) Write the chemistry and therapeutic properties of Vinca, Shankhapushpi and punernava.  
**OR**  
 c) Write a note on Isolation of alkaloids. 5+9  
 d) Write the sources, chemical and therapeutic properties of Opium and ipecac.
- 2 a) Discuss the chemistry of cardiac glycosides. 5+9  
 b) Write the sources, chemical and therapeutic properties of Liquorice, Momordica and Ammi.  
**OR**  
 c) Give the adulterants and distinguish characters for Senna and digitalis. 5+9  
 d) Write the sources, chemical and therapeutic properties of Psoralea, gokhru and brahmi.
- 3 a) Give the chemical structure and isolation of Quinine from cinchona and caffeine from tea. 8+6  
 b) Give the sources and chemical constituents of Artemisia, Taxus and Podophyllum.  
**OR**  
 c) Define and classify the resins with examples. 5+9  
 d) Discuss the chemical constituents and therapeutic properties of Turmeric, clove and capsicum.
- 4 a) Write about 4+5+5  
     i) Surface sterilization      ii) Immobilization of culture      iii) Organogenesis  
**OR**  
 b) Write the advantages of plant tissue culture.  
 c) Give an informative note on embryo culture and biotransformation
- 5 a) Discuss the importance of plants in discovery of new drugs. 6+8  
 b) Write a note on traditional systems of medicines practiced in India.  
**OR**  
 c) Discuss the problem in standardization of Herbal medicines.  
 d) Define and give the method of preparation of Ghritams, Asawas and Aristavas. 5+9

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**FACULTY OF PHARMACY****B. Pharmacy 3/4 I-Semester (Suppl.) Examination, April 2016****Subject : Physical Pharmacy - I****Time : 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) State gas laws. Write the ideal gas law. How do you determine molecular weight of gas using gas laws. (6)  
 (b) Explain phase diagram for eutectic mixture. (8)  
**OR**  
 (c) Write notes on :  
     (i) X-ray diffraction (5)  
     (ii) Differential scanning calorimetry (5)  
     (iii) Amorphous solid (4)
- 2 (a) State and explain first and second law of thermodynamics. (6)  
 (b) Write a note on free energy function and work function and their applications. (8)  
**OR**  
 (c) Explain the terms enthalpy, entropy, heat capacity and internal energy. (8)  
 (d) Write about heat of combustion and heat of neutralization. (6)
- 3 (a) Define and explain various methods of expression of (molarity, molality, normality, % w/w and w/v). (8)  
 (b) Write a note on Sorenson's pH scale. (6)  
**OR**  
 (c) What are colligative properties? Explain elevation of boiling point as colligative property. How do you calculate molecular weight using the same? (7)  
 (d) Explain and derive an equation for ionization of weak acid. (7)
- 4 (a) What is buffer capacity? Write the equations for buffer capacity and maximum buffer capacity. (7)  
 (b) Explain the relationship between pH and solubility. (7)  
**OR**  
 (c) Explain white Vincent method for adjusting isotonicity. How do you render 30ml of 1% solution of procaine hydrochloride isotonic with body fluid. (sodium chloride equivalent of procaine hydrochloride is 0.21). (7)  
 (d) Write a note on physiological buffers. (7)
- 5 (a) Write about different types of catalysts and catalytic reactions. (8)  
 (b) Explain the working of pH meter. (6)  
**OR**  
 (c) Discuss the principles and working of :  
     (i) Hydrogen electrode (7)  
     (ii) Oxidation reduction electrode (7)

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**FACULTY OF PHARMACY****B. Pharmacy 3/4 I – Semester (Suppl.) Examination, April 2016****Subject: Pharmaceutical Technology (Pharmaceutics – II)****Time: 3 Hours****Max.Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Classify hydrocolloids. Describe their properties and concentrations used in pharmaceutical liquid dosage forms. 9
- b) Mention the ideal requirements in the selection of adjuvants in pharmaceutical preparation. 5
- OR**
- c) Explain the different steps involved in the preparation of hard gelatin capsule shells. 5
- d) Describe rotary die process. 5
- e) Explain quality control of soft gelatin capsule. 4
- 2 a) Describe the theory of emulsions. Explain in detail DLVO theory. 10
- b) Explain zeta potential. 4
- OR**
- c) Explain the formulation of pharmaceutical suspensions with a neat flow chart. 5
- d) Describe various identification tests of emulsions. 5
- e) Write a note on HLB. 4
- 3 a) Discuss the role of different types of excipients used in tablet formulation. Name few excipients used in tablet formulation. 6
- b) Explain wet granulation and slugging process. 8
- OR**
- c) Define film coating and mention the advantages of it. Mention few polymers to achieve film coating. 6
- d) Explain various defects experienced in the process of coating. 8
- 4 a) Explain in detail clean room guidelines of parenteral production area. 8
- b) Explain sterility test. 6
- OR**
- c) Write note on formulation of eye ointments. 6
- d) What do you mean by artificial tears, mention the composition of it? 2
- e) Describe the quality control tests for eye formulations. 6
- 5 a) Explain formulation, manufacturing process and quality control of aerosols. 14
- OR**
- b) Discuss plastic as a pharmaceutical packaging system. 7
- c) Explain quality control tests for glass as a packaging system. 7

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**FACULTY OF PHARMACY****B. Pharmacy 3/4 I – Semester (Supplementary) Examination, April 2016****Subject : Pharmacology - I****Time : 3 hours****Max. Marks : 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Write about the following : 7+7  
 i) Phase-I Reactions  
 ii) Biological Half life and its significance  
**OR**  
 b) Write about the advantages and disadvantages of different routes of drug administrations. 14
- 2 a) Classify Parasympatholytic agents and write about the pharmacology of atropine. 14  
**OR**  
 b) Write about the following : 7+7  
 i)  $\alpha$ -adrenergic blockers  
 ii) Cholinesterase Inhibitors
- 3 a) Classify the NSAIDS and write about the mechanism of action, adverse effects and therapeutic uses of : 5+9  
 i) Aspirin                      ii) Ibuprofen                      iii) Celecoxib  
**OR**  
 b) i) Give the classification of Anti-epileptic agents 5+9  
 ii) Discuss the mechanism of action, adverse effects and therapeutic uses of Levodopa and Phenytoin
- 4 a) Write about the following : 7+7  
 i) Anti-hyperlipidemic agents  
 ii) Drugs used in the treatment of Bronchial Asthma  
**OR**  
 b) Define arrhythmia, classify the anti-arrhythmic agents and write in detail about the pharmacology of any two classes of drugs. 2+6+6
- 5 a) Classify diuretics and write about the mechanism of action, adverse effects and therapeutic uses of any three classes of drugs. 5+9  
**OR**  
 b) Write about the following : 7+7  
 i) Anti-emetic agents  
 ii) Proton pump Inhibitors

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