

## FACULTY OF PHARMACY

B. Pharmacy 2/4 II – Semester (Suppl.) Examination, October / November 2014

Subject: Pharmaceutical Biochemistry

Time: 3 Hours

Max.Marks: 70

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

- 1 (a) Explain an organization of a cell with neat diagram. (7)  
(b) Discuss about energy rich compounds and reduction potential. (7)  
**OR**  
(c) Explain the concept of free energy. (4)  
(d) Write the production of ATP and its biological significance. (10)
- 2 (a) What are enzymes? (2)  
(b) Classify enzymes with suitable examples. (4)  
(c) Discuss role of an enzyme in biochemical process and mention its applications. (8)  
**OR**  
(d) Give an account of glycogenesis. (4)  
(e) Describe about citric acid cycle. (10)
- 3 (a) Write a note on fate of dietary lipids. (4)  
(b) Explain the  $\beta$ -oxidation of fatty acids. (10)  
**OR**  
(c) What are ketone bodies? How they are biosynthesized in the body? (4)  
(d) Discuss the biosynthesis of saturated and unsaturated fatty acids. (10)
- 4 (a) Discuss the general metabolic pathway for amino acids. (10)  
(b) Write a note on urea cycle. (4)  
**OR**  
(c) What are nucleotides? (2)  
(d) Discuss the biosynthesis of purine nucleotides. (12)
- 5 (a) Explain the principle involved in quantitative estimation of glucose and creatinine in blood. (10)  
(b) Write the principle involved in qualitative and quantitative estimation of glucose in urine. (4)  
**OR**  
(c) Write the principle involved in qualitative and quantitative estimation of bile pigments in urine. (10)  
(d) discuss the role of cyclic AMP in enzyme activation. (4)

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## FACULTY OF PHARMACY

B. Pharmacy 2/4 II – Semester (Suppl.) Examination, October / November 2014

Subject: Pharmacognosy - I

Time: 3 hours

Max. Marks: 70

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

- 1 a) i) Discuss various methods of classification of crude drugs with suitable examples. 10  
 ii) Write advantages and disadvantages of cultivation of medicinal plants. 4
- OR**
- b) i) Discuss the factors which are given special attention for cultivation of medicinal plants, with suitable examples. 10  
 ii) Write a note on collection and processing of crude drugs. 4
- 2 a) i) Write a note on  
 A) Precursor-product sequence  
 B) Competitive feeding 7  
 ii) Explain biosynthesis of isoprenoid compounds. 7
- OR**
- b) i) Describe Shikimic acid pathway of biosynthesis. 7  
 ii) Explain tracer technique employed in biosynthetic pathways. 7
- 3 a) i) Define drug adulteration. Write about different types of adulteration in crude drugs, with suitable examples. 7  
 ii) What is meant by drug evaluation? Write about physical evaluation of crude drugs. 7
- OR**
- b) i) What is a pest? Write a note on pest control. 6  
 ii) Explain the microscopic evaluation of crude drugs. 8
- 4 a) i) Write biological source, chemical constituents and uses of  
 A) Agar      b) Isabgol      c) Theobroma oil      D) Myrobalan 10  
 ii) Write a short note on fixed oils. 4
- OR**
- b) i) Write biological source, chemical constituents and uses of  
 A) Tragacanth      B) Starch      C) Chaulmoogra oil      D) Spermaceti 10  
 ii) Write a note on Tannins. 4
- 5 a) i) Discuss pharmacognostic study of cotton. 8  
 ii) Write short notes on any two mineral origin drugs. 6
- OR**
- b) i) Write pharmacognositic study of shark liver oil. 8  
 ii) Write short notes on any two drugs belonging to the class of proteins and enzymes. 6

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**FACULTY OF PHARMACY****B.Pharmacy 2/4 II - Semester (Supplementary) Examination, October/November 2014****Subject : Pharmaceutical Engineering - II****Time : 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Explain any two screening equipment with advantages and applications. (7)  
 (b) Describe the construction and working of fluid energy mill with help of diagram. (7)  
**OR**  
 (c) Explain the construction and working of Rotocel extractor. (7)  
 (d) Describe the construction and working principle of double cone classifier. (7)
- 2 (a) Explain the factors affecting evaporation. (6)  
 (b) Describe the construction and working of forced circulation evaporator. (8)  
**OR**  
 (c) What is mean free path and mention its significance? (4)  
 (d) Explain the construction and working of centrifugal molecular skills with neat diagram. (10)
- 3 (a) What is EMC and FMC? Mention their significance. (4)  
 (b) Explain the principle involved and construction of freeze dryer. (10)  
**OR**  
 (c) Explain construction and working of fluidized bed drying. (7)  
 (d) Describe the principle involved and construction u/s Swenson walker implizer. (7)
- 4 (a) Describe the factors influencing selection of mixer. (6)  
 (b) Write the construction and working of sigma blade mixer with neat sketch. (8)  
**OR**  
 (c) Classify mixing equipment with examples. (5)  
 (d) Mention the objectives of mixing. (2)  
 (e) Write the construction and working principle of triple roller mill. (7)
- 5 (a) What are the different punch forces involved during compaction? (5)  
 (b) How do you measure the punch forces along with working of LVDT (Linear Variable Differential Transducer). (9)  
**OR**  
 (c) What is feed forward and feed back mechanisms in automatic process control? (5)  
 (d) Describe the measurement techniques for process variable temperature and level. (9)

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**FACULTY OF PHARMACY****B.Pharmacy 2/4 II-Semester (Supplementary) Examination, October/November 2014****Subject : Environmental Studies****Time : 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Describe the structure of ecosystem. (6)  
 (b) Explain the role of an individual in conservation of natural resources. (8)  
**OR**  
 (c) Write notes on the following: (4 + 6 + 4)  
 (i) Land degradation (ii) Over exploitation of Minerals  
 (iii) Sustainable life styles
- 2 (a) Explain the medicinal and economic value of biodiversity. (8)  
 (b) Define hot spots and discuss about Indian hot spots. (6)  
**OR**  
 (c) Explain the following: (4 + 6 + 4)  
 (i) Genetic diversity (ii) Biosphere reserves  
 (iii) Endemic species of India
- 3 (a) Explain the following briefly. (8 + 6)  
 (i) Climate change and globalwarming (ii) Nuclear hazards  
**OR**  
 (b) Write briefly on the following:  
 (i) Effects of air pollutants on materials and plants (8)  
 (ii) Waste recycle and reuse (6)
- 4 (a) Explain the effects of human activities on the quality of environment. (8)  
 (b) Discuss about floods, cyclones and land slides. (6)  
**OR**  
 (c) Write notes on the following : (4x3.5)  
 (i) Value education (ii) Wasteland reclamation  
 (iii) Rainwater harvesting (iv) Green revolution
- 5 (a) Explain the following: (5 + 4 + 5)  
 (i) Forest conservation Act (ii) Ramsar convention  
 (iii) Wild life protection Act  
**OR**  
 (b) Write briefly on the following: (5 + 4 + 5)  
 (i) Negative and positive impacts of EIA (ii) Ecolabeling  
 (iii) Right to information Act

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## FACULTY OF PHARMACY

B.Pharmacy 2/4 II - Semester (Supplementary) Examination, October/November 2014

Subject : Pharmaceutical Organic Chemistry – II

Time : 3 Hours

Max. Marks: 70

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

- 1 (a) (i) Explain in detail Huckel  $4n + 2$  rule and Aromaticity. (7)  
 (ii) What are polynuclear aromatic compounds? Discuss in detail the reactions of Anthracene. (7)
- OR**
- (b) (i) Describe the mechanism of Nitration and Friedel-Craft methylation of benzene. (10)  
 (ii) How Halobenzene undergo substitution reaction? Explain. (4)
- 2 (a) (i) Explain optical isomerism with examples. (6)  
 (ii) Explain the following terms: (A) Plane polarized light (B) Diastereomers (C) Meso structures (D) Enantiomers (8)
- OR**
- (b) (i) Write a brief note on conformational isomerism. (6)  
 (ii) Explain sequence rules to determine R and S configuration. (8)
- 3 (a) (i) Compare the aromaticity of pyrrole, furan and thiophene. (6)  
 (ii) Discuss the reactions of pyridine. (8)
- OR**
- (b) (i) Outline the method of preparations of (A) Quinoline (B) Indole (8)  
 (ii) Write the structures and medicinal uses of compounds bearing (A) Quinoline (B) Isoquinoline (C) Acridine (6)
- 4 (a) (i) Discuss any two methods of preparation and reactions of Imidazole. (8)  
 (ii) Give any one method of preparation of (A) Benzimidazole (B) Oxazole (C) Phenothiazine (6)
- OR**
- (b) (i) Discuss any two method of preparation of thiazole and pyrazole. (8)  
 (ii) Write the structures and specific uses of the following: (6)  
 (A) Oxazine (B) Triazine (C) Triazole
- 5 (a) (i) Write any two applications of each of the following: (6)  
 (A) Lithium Aluminium Hydride (B) Lead Tetra Acetate (C) Selenium oxide  
 (ii) Describe the mechanism of following reactions (8)  
 (A) Birch reduction (B) MPV Reduction
- OR**
- (b) (i) Explain Oppenauer oxidation and Beckmann-Rearrangement and their applications in synthesis. (10)  
 (ii) Mention any two applications of perchloric acid (4)

**FACULTY OF PHARMACY****B. Pharmacy 2/4 II – Semester (Main) Examination, March 2014****Subject : Pharmaceutical Bio-Chemistry****Time : 3 hours****Max. Marks : 70****Note : Answer all questions. All questions carry equal marks.**

- 1 a) Describe the different mechanisms involved in the transport of metabolites through the biological membranes. 5  
 b) Write an account of high-energy compounds metabolism. 4  
 c) Explain the production of ATP. 5  
**OR**  
 d) Write the biological significance of ATP. 4  
 e) How will you determine equilibrium constant and reduction potential? 5  
 f) Explain the mechanism of transport process across cell membrane. 5
- 2 a) How do you classify enzymes? 3  
 b) Explain the mechanism of action of enzymes with suitable examples. 5  
 c) Discuss clinical applications of enzymes with relevant examples. 6  
**OR**  
 d) Write a brief account of glycolysis. 6  
 e) Define gluconeogenesis and glycogenolysis. 4  
 f) Explain the role of sugar nucleotides in biosynthesis. 4
- 3 a) Define fatty acids with examples. 2  
 b) Describe the  $\beta$ -oxidation of fatty acids. 6  
 c) Write about  $\omega$ -oxidation and  $\alpha$ -oxidation of fatty acids. 6  
**OR**  
 d) Write in detail about metabolism of cholesterol. 9  
 e) Explain briefly on fate of dietary lipids. 5
- 4 a) Describe the general metabolic pathways of amino acids. 6  
 b) Explain the urea cycle in detail. 8  
**OR**  
 c) Discuss the different application of recombinant DNA technology. 8  
 d) Explain the mechanism of protein synthesis. 4  
 e) Define biological oxidation. 2
- 5 a) Write the principle and method for quantitative and qualitative analysis of blood for  
 i) SGPT      ii) Urea      iii) Creatinine 14  
**OR**  
 b) Write the principle and method for quantitative and qualitative analysis of urine for  
 i) Bile salts      ii) Albumin      iii) Ketone bodies 14

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**FACULTY OF PHARMACY****B. Pharmacy 2/4 II – Semester (Main) Examination, March 2014****Subject : Pharmaceutical Engineering – II****Time : 3 hours****Max. Marks : 70****Note : Answer all questions. All questions carry equal marks.**

- 1 a) Explain construction of diffusion batteries and mention principle of working with the help of diagram. 7  
 b) Write the construction and working of Podbielniak extractor. 7  
**OR**  
 c) Differentiate between cyclone separator and air separator. 7  
 d) How do you determine particle size and its distribution for the preparation of pharmaceutical powders? 7
- 2 a) Explain energy and mass transfer relationships during evaporation. 7  
 b) Explain with neat sketch, the construction and working of climbing film evaporator. 7  
**OR**  
 c) Distinguish between evaporation and distillation. 4  
 d) Explain theory of rectification. 4  
 e) Write construction of sieve plate and packed columns. 6
- 3 a) Explain the stages involved in drying rate curve. 7  
 b) Describe the construction and principle of working of spray dryer with help of diagram. 7  
**OR**  
 c) Describe the Meir's super saturation theory and mention its limitations. 6  
 d) Explain the construction and working of Krystal crystallizer. 7
- 4 a) What is mixing index? Write the construction and working of zigzag mixer. 8  
 b) Classify impellers and mention their characteristics. 6  
**OR**  
 c) Classify Ion exchange resins with examples. Mention their principles and applications. 7  
 d) Explain the construction and working of sigma blade mixer. 7
- 5 a) What is automatic process control and mention their applications?  
 b) Describe the measurement techniques for process variables such as pressure and vacuum.  
**OR**  
 c) Explain the factors effecting strength of granules and strength of tablets.

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**FACULTY OF PHARMACY****B. Pharmacy 2/4 II-Semester (Main) Examination, April 2014****Subject : Pharmacognosy – I****Time : 3 Hours****Max. Marks: 70****Note: Answer All questions. All questions carry equal marks.**

- 1 (a) (i) Discuss various methods of classification of crude drugs with suitable examples. (10)  
(ii) What is cultivation? Write advantages and disadvantages of cultivation. (4)
- OR**
- (b) (i) Explain the applications of plant hormones. (8)  
(ii) Write a note on treatment of crude drugs after collection with suitable examples. (6)
- 2 (a) Explain the techniques employed in biosynthetic pathways. (14)
- OR**
- (b) (i) Discuss the role of shikimic acid pathway in the biogenesis of secondary metabolites. (7)  
(ii) Write a note on isoprenoid biosynthesis. (7)
- 3 (a) (i) Discuss the quality control of crude drugs. (8)  
(ii) Write about various types of adulteration occurring in crude drugs with suitable examples. (6)
- OR**
- (b) (i) Enumerate various environmental and biological factors which cause drug deterioration. (10)  
(ii) Write a note on leaf constants. (4)
- 4 (a) (i) Write biological source, chemical constituents and uses of (A) Agar (B) Starch (C) Acacia (D) Bees Wax (10)  
(ii) What are tannins? Classify with suitable examples. (4)
- OR**
- (b) (i) Write pharmacognostic study of castor oil. (10)  
(ii) What are carbohydrates? Classify with examples. (4)
- 5 (a) (i) Write pharmacognostic study of cotton. (10)  
(ii) Write a note on honey. (4)
- OR**
- (b) (i) Write biological source, chemical constituents and uses of (A) Jute (B) Wool (C) Sharkliveroil (D) Musk (10)  
(ii) Write a note on Pepsin. (4)



## FACULTY OF PHARMACY

**B. Pharmacy II-Year II-Semester (Main) Examination, April 2014**

**Subject : Environmental Studies**

**Time : 3 Hours**

**Max. Marks: 70**

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

- 1 (a) Discuss briefly about land and forest resources with suitable examples. (7)  
 (b) Write briefly about sustainable life cycle and their importance. (7)  
**OR**  
 (c) Discuss in detail about conservation of natural resources. (7)  
 (d) Write briefly about sustainability theory and practices. (7)
- 2 (a) Explain the following:  
 (i) Consumptive and productive use of biodiversity (6)  
 (ii) Insitu conservation of biodiversity (4)  
 (iii) Indigenous knowledge (4)  
**OR**  
 (b) Write notes on the following:  
 (i) Global, national and local levels of biodiversity (8)  
 (ii) Distribution and magnitude of biodiversity (6)
- 3 (a) Write notes on the following:  
 (i) Marine pollution and control (5)  
 (ii) Ground water depletion (5)  
 (iii) Sanitation and public health (4)  
**OR**  
 (b) Explain briefly the following:  
 (i) Manufacturing industry - pollution minimization (5)  
 (ii) Process development - alternate methods and routes (5)  
 (iii) Nuclear hazards (4)
- 4 (a) Write notes on the following:  
 (i) Problems of poverty and food (4)  
 (ii) Human activities and effects on environment (6)  
 (iii) Hygiene and sanitation (4)  
**OR**  
 (b) Explain the following briefly.  
 (i) Urbanization and its impacts on environment (5)  
 (ii) Disaster management (4)  
 (iii) Waste land reclamation (5)
- 5 (a) Write short notes on the following:  
 (i) ECO Audit (4)  
 (ii) Environmental regulations (6)  
 (iii) Municipal solid waste management (4)  
**OR**  
 (b) Explain the following briefly  
 (i) ISO : 14,000 and series (5)  
 (ii) Environmental legislation (6)  
 (iii) Kyoto protocol (3)

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## FACULTY OF PHARMACY

B. Pharmacy 2/4 II – Semester (Main) Examination, March 2014

Subject : Pharmaceutical Organic Chemistry – II

Time : 3 hours

Max. Marks : 70

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

- 1 a) i) Write the method of preparation and important chemical reactions of anthracene. 6  
 ii) Explain the mechanism of electrophillic substitution reactions. 8  
**OR**
- b) i) Discuss in detail the reactions of phenols. 8  
 ii) Write a note on nucleophillic substitution in halobenzenes. 6
- 2 a) i) Explain relative configuration of optically active compounds. 6  
 ii) Define with examples A) enantiomers B) diastereomers 8  
 Explain briefly plane of symmetry. 8  
**OR**
- b) i) What is racemic modification? How do you resolute racemic modification. 7  
 ii) What is cis-trans isomerism? How do you assign configuration to E and Z isomers? 7
- 3 a) i) Draw the structure of thiophene and explain electrophillic substitution reactions of thiopene with examples. 8  
 ii) Outline the method of preparation and two important chemical properties of Indole. 6  
**OR**
- b) i) Describe any one method for preparation of quinoline and isoquinoline. 10  
 ii) Explain why electrophillic substitution take place at 2 and 5 position in Furan. 4
- 4 a) i) Outline the method of preparation and important chemical reactions of pyrazoles. 8  
 ii) Draw the structure and uses of compounds containing A) Phenam B) Cepham C) Oxazine 6  
**OR**
- b) i) Write the ring structure and nomenclature of following heterocyclic compounds. 6  
 A) Benzofuran B) Dioxane C) Tetrazole  
 ii) Write any one method of preparation of following : 8  
 A) phenothiazine B) benzimidazole
- 5 a) i) Write two applications of each of the following : 6  
 A) selenium oxide B) sodium periodate C) perchloric acid  
 ii) Describe the mechanism of following reaction 8  
 A) Hoffman's hypobromite reaction B) Oppenauer oxidation  
**OR**
- b) i) Explain Birch reduction and Arndt-Eistert synthesis. 10  
 ii) Mention two important applications of LAH. 4

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