

**FACULTY OF PHARMACY****B. Pharmacy 2/4 II-Semester (Supplementary) Examination, November 2015****Subject : Pharmaceutical Biochemistry****Time : 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Write the biochemical organization of cell with a neat diagram. (8)  
 (b) Write about: (2x3)  
 (i) Free energy  
 (ii) Reduction potential  
 (iii) Energy rich compounds
- OR**
- (c) Discuss in detail various transport processes across cell membrane. (8)  
 (d) Explain the concept of free energy. (6)
- 2 (a) Classify the enzymes with examples. (4)  
 (b) Write about activator and deactivator of enzymes. (6)  
 (c) Explain the clinical applications of enzymes and co-enzymes. (4)
- OR**
- (d) Discuss about the citric acid cycle. (6)  
 (e) Explain the Cori's cycle. (4)  
 (f) Write about pentose phosphate cycle. (4)
- 3 (a) Write a note on  $\beta$ -Oxidation. (6)  
 (b) Explain the regulation of fatty acid oxidation. (4)  
 (c) Write about synthesis of ketone bodies. (4)
- OR**
- (d) Discuss the biosynthesis of saturated fatty acids. (5)  
 (e) Explain the metabolism of cholesterol. (7)  
 (f) Write a note on phospholipids. (2)
- 4 (a) Explain the metabolic disorders of carbohydrate metabolism. (6)  
 (b) Discuss the biosynthesis of pyrimidine nucleotides. (4)  
 (c) Write a short note on structural aspects of DNA and RNA. (4)
- OR**
- (d) Describe the de novo biosynthesis of purines. (6)  
 (e) Write the enzymes involved in biological oxidation. (5)  
 (f) Enlist various inborn errors in metabolism. (3)
- 5 (a) Discuss the different laboratory investigations used to assess liver function. (8)  
 (b) Explain the Qualitative tests used to detect the abnormal constituents of urine. (6)
- OR**
- (c) Describe the principles and methods involved in the Quantitative analysis of the following blood constituents. (14)  
 (i) Glucose  
 (ii) Urea  
 (iii) Creatinine

## FACULTY OF PHARMACY

B. Pharmacy 2/4 II-Semester (Supplementary) Examination, November 2015

Subject : Environmental Studies

Time : 3 Hours

Max. Marks: 70

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

- 1 (a) Define ecosystem and describe the structural aspects of ecosystem  
(b) Write about energy Resources and conservation of energy.  
**OR**  
(c) Discuss in detail about mineral resources.  
(d) Explain the problems associated with over exploitation of natural resources.
- 2 (a) Explain the following:  
(i) Levels of biodiversity  
(ii) Medicinal value of biodiversity  
**OR**  
(b) Write notes on the following:  
(i) Wild life sanctuaries and Biosphere reserves  
(ii) Hot spots of India
- 3 (a) Write notes on the following:  
(i) Water pollution  
(ii) Effects of Noise pollution  
(iii) Nuclear hazards  
**OR**  
(b) Explain the following:  
(i) Causes and consequences of global warming  
(ii) Hazardous waste and disposal
- 4 (a) Write notes on the following:  
(i) Population growth and environment  
(ii) Problems of health and sanitation  
(iii) Green revolution  
**OR**  
(b) Explain the following:  
(i) Watershed management  
(ii) Natural disaster
- 5 (a) Write the following:  
(i) Right to Information Act  
(ii) Wildlife Protection Act  
(iii) Ramsar convention  
**OR**  
(b) Explain the following:  
(i) Impacts of EIA  
(ii) Eco-Labeling  
(iii) Environmental Management Plan

**FACULTY OF PHARMACY****B. Pharmacy 2/4 II-Semester (Suppl.) Examination, November 2015****Subject : Pharmaceutical Engineering - II****Time : 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Write the principle, construction, working and applications of fluid energy mill with diagram. (8)
- (b) Write a note on : (6)
- (i) Elutriation (ii) Sedimentation
- OR**
- (c) Write the laws of size reduction. (4)
- (d) With the help of neat diagram. Explain the design and operation of diffusion batteries in extraction. (10)
- 2 (a) Discuss theory applied to binary mixtures. (10)
- (b) Write the classification of evaporators. (4)
- OR**
- (c) Explain the theory, equipment and applications of molecular distillation. (8)
- (d) Explain the principle, construction and applications of forced circulation evaporator. (6)
- 3 (a) Explain the principle, process and special applications of freeze drying. (8)
- (b) Explain the significance of drying curve. (6)
- OR**
- (c) Write the principle, construction and working, advantages and disadvantages of crystal crystallizer. (8)
- (d) Write a note on fluidized bed dryer with a neat diagram. (6)
- 4 (a) Write the principle and applications of Ion Exchange. (4)
- (b) Write the construction, working and applications of triple roller mill. (4)
- (c) Write about the different types of impellers in liquid-liquid mixing. (6)
- OR**
- (d) Classify equipments used in solid-solid mixing and write any two. (8)
- (e) What is the disadvantage of formation of vertex in liquid mixing? Suggest the methods to eliminate it. (6)
- 5 (a) Define automatic process control variables. Name the types of process variables and explain about the equipment used for pressure control. (8)
- (b) What are the factors affecting strength of tablets? Write about any two. (6)
- OR**
- (c) Explain about the energy involved in granule compaction with a note on FD curves. (8)
- (d) Explain adhesion and cohesion particles. (6)

**FACULTY OF PHARMACY****B. Pharmacy 2/4 II-Semester (Supplementary) Examination, November 2015****Subject : Pharmacognosy - I****Time : 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) (i) Describe different plant hormones and their applications. (10)  
 (ii) Write the advantages and disadvantages of cultivation of medicinal plants. (4)
- OR**
- (b) (i) Explain different exogenous factors causing variations in drug constituents. (7)  
 (ii) Write the systematic description of crude drugs.
- 2 (a) (i) Give the details of Shikimic acid pathway. (7)  
 (ii) Explain Tracer Technique employed in biosynthetic pathways. (7)
- OR**
- (b) (i) Explain biosynthetic pathways for carbohydrate synthesis. (10)  
 (ii) Write a note on sequential analysis. (4)
- 3 (a) (i) Explain different types of Adulteration with examples. (7)  
 (ii) Write about the determination of : (7)  
 (A) Foreign organic matter  
 (B) Moisture content
- OR**
- (b) (i) Explain microscopic evaluation of crude drugs with suitable examples. (8)  
 (ii) What is a pest? Write a note on pest control. (6)
- 4 (a) (i) Write Biological source, chemical constituents and uses of (10)  
 (A) Tragacanth (B) Isabgol (C) Neem oil (D) Bees Wax  
 (ii) Write a note on Tannins. (4)
- OR**
- (b) (i) Write pharmacognostic study of castor oil. (7)  
 (ii) write a note on Agar and Amla. (7)
- 5 (a) (i) Write a note on plant fibres. (7)  
 (ii) Write short notes on (7)  
 (A) Musk (B) Gelatin
- OR**
- (b) (i) Write a note on animal fibres. (7)  
 (ii) Write notes on (A) Honey (B) Papain (7)

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## FACULTY OF PHARMACY

B. Pharmacy 2/4 II-Semester (Supplementary) Examination, November 2015

Subject : Pharmaceutical Organic Chemistry - II

Time : 3 Hours

Max. Marks: 70

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

- 1 (a) (i) Explain the mechanism for Nitration and Halogenation of benzenes. (6)  
 (ii) What are polynuclear aromatic compounds? Discuss in detail the reactions of Naphthalene. (8)
- OR**
- (b) (i) Explain in detail the effect of substituent on orientation of mono substituted aromatic compounds. (8)  
 (ii) Explain in detail Huckel  $4n + 2$  rule and aromaticity. (6)
- 2 (a) (i) Write a note on conformational isomerism. (6)  
 (ii) Write the sequence rules to determine R and S configuration. (8)
- OR**
- (b) (i) Explain optical isomers with examples. (6)  
 (ii) Explain the following terms : (8)  
 (A) Plane polarized light (B) Diastereomers  
 (C) Mesostructures (D) Enantiomer
- 3 (a) (i) Outline the method of preparation and two important reactions of the following: (10)  
 (A) Isoquinoline (B) Acridine  
 (ii) Give two examples of medicinally important compounds representing each of the following heterocyclic systems. (4)  
 (A) Furan (B) Pyrrole
- OR**
- (b) (i) Explain why Electrophilic substitution takes place at 3<sup>rd</sup> position in pyridine. (4)  
 (ii) Compare the aromaticity of pyrrole, Furan and thiophene. (4)  
 (iii) Discuss the reactions of pyridine (6)
- 4 (a) (i) Explain any two methods of preparation of pyrazole and oxazole. (10)  
 (ii) Write the ring structure and Nomenclature of following Heterocyclic compounds. (4)  
 (A) Cinnoline (B) Oxazine (C) Triazine (D) Tetrazole
- OR**
- (b) (i) Write the characteristic reactions of thiazole and pyrazine. (6)  
 (ii) Discuss any two methods of preparation and reactions of Imidazole. (8)
- 5 (a) (i) Write two applications for each of the following: (6)  
 (A) Lithium Aluminium (B) Lead Tetra Acetate (C) N-Bromosuccinimide  
 (ii) Describe mechanism of following reaction. (8)  
 (A) Oppenauer oxidation (B) Birch reduction
- OR**
- (b) (i) Describe mechanism of following reaction. (8)  
 (A) Fries migration (B) MPV reduction  
 (ii) Write the applications of each of the following (any two applications). (6)  
 (A) Sod. Periodate (B) Selenium oxide (C) Perchloric acid

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B. Pharmacy 2/4 II – Semester (Main) Examination, April / May 2015

Subject : Environmental Studies

Time : 3 hours

Max. Marks : 70

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

- 1 a) Explain the functional aspects of ecosystem. 8  
b) Discuss about equitable use of resources for sustainable lifestyles. 6  
OR  
c) Write notes on the following :  
i) Solar energy 5  
ii) Over exploitation of forest resources 4  
iii) Conservation of natural resources 5
- 2 a) Discuss about magnitude and distribution of biodiversity. 8  
b) Write briefly conservation of biodiversity loss. 6  
OR  
c) Explain the following :  
i) Wildlife sanctuaries 5  
ii) Species diversity 4  
iii) Biosphere reserves 5
- 3 a) Explain the following briefly.  
i) Causes and effects of noise pollution 8  
ii) Ground water depletion 6  
OR  
b) Write briefly on the following :  
i) Sanitation and public health in India 6  
ii) Urban and Industrial waste management 8
- 4 a) Explain the problems and consequences of population growth and explosion. 8  
b) Discuss about wasteland reclamation and consumerism. 6  
OR  
c) Write notes on the following : 4 x 3.5  
i) Earthquakes  
ii) Nuclear accidents  
iii) Watershed management  
iv) Green revolution
- 5 a) Explain the following :  
i) EIA notification 5  
ii) Right to information act 5  
iii) Kyoto protocol 4  
OR  
b) Write briefly on the following :  
i) Classification of EIA 5  
ii) ISO : 14000 4  
iii) Hazardous waste rules 5

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**B. Pharmacy 2/4 II-Semester (Main) Examination, April 2015**

**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 mechanism of sulphonation in benzene. (7)  
(ii) Explain the nucleophilic substitution in Halobenzene. (7)
- OR**
- (b) (i) Explain the Riemen tiemann reaction of phenols. (6)  
(ii) Write the structure and electrophilic of substitution reacitons of Anthracene. (8)
- 2 (a) (i) Write a note on sequence rule. (8)  
(ii) Discuss cis-trans isomerism. (6)
- OR**
- (b) (i) Write a brief note on concept of stereospecifics. (6)  
(ii) Discuss conformational isomerism. (8)
- 3 (a) (i) Write a note on Fischer Indole synthesis. (6)  
(ii) Discuss the electrophilic aromatic substitution reactions of pyridine. (8)
- OR**
- (b) (i) Write any two methods of synthesis of thiophene. (5)  
(ii) Discuss the oxidation reactions of quinoline and isoquinoline. (5)  
(iii) Write the structure and specific uses two medicinally important compounds representing each of following heterocyclic systems. (4)  
(A) Quinoline (B) Furan
- 4 (a) (i) Explain any two methods of preparation of isoxazole and pyrazole. (10)  
(ii) Write the drug structure and nomenclature following heterocyclic compounds. (4)  
(A) Benzofuran (B) Oxazine (C) Triazine (D) Phenan
- OR**
- (b) (i) Explain any two methods of preparation of benzimidazole. (8)  
(ii) Write the structure and system of numbering of the following heterocyclics with two examples of medicinally important compounds. (6)  
(A) Benzopyran (B) Dioxan (C) Cepham
- 5 (a) (i) Write two applications of each of the following (6)  
(A) Lead tetra acetate (B) Sodium periodate  
(ii) Describe the mechanisms of following reactions. (8)  
(A) Arndt - Eistert synthesis (B) Beckmann Rearrangement
- OR**
- (b) (i) Write two applications of each of the following: (6)  
(A) N-Bromosuccinimide (B) Peachloric acid  
(ii) Describe the mechanism of following reactions. (8)  
(A) Hoffman's hypobromite (B) MPV reduction

B.Pharmacy II / II-Semester (Main) Examination, April 2015

Subject : Pharmaceutical Biochemistry

Time : 3 Hours

Max. Marks: 70

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

- 1 (a) Explain reduction potential and free energy constant. (6)  
(b) Discuss active transport mechanisms. (8)
- OR**
- (c) Describe the mechanism of passive transport across the cell membrane. (8)  
(d) Write about the fluid mosaic model and bio membrane structure and its significance. (6)
- 2 (a) What are Enzymes? (2)  
(b) Classify enzymes with examples. (4)  
(c) Explain the mechanism of enzyme action. (8)
- OR**
- (d) Describe the process of gluconeogenesis in carbohydrate metabolism. (8)  
(e) Explain the citric acid cycle. (6)
- 3 (a) Explain fatty acids with suitable examples of biochemical relevance. (4)  
(b) Describe the  $\beta$ -oxidation of fatty acids. (10)
- OR**
- (c) Explain the functions of Phospholipids and sphingolipids. (4)  
(d) Discuss the biosynthesis of saturated and unsaturated fatty acids. (10)
- 4 (a) Explain the biosynthesis of DNA and its replications. (7)  
(b) Write on biosynthesis of RNA. Write a note on transcription. (7)
- OR**
- (c) Write briefly about biological oxidation. (7)  
(d) Explain the biosynthesis of purines. (7)
- 5 (a) Write the principle involved in the qualitative and quantitative analysis of blood for  
(i) Glucose (ii) SGPT and SGPT (14)
- OR**
- (b) Write the principle involved in the qualitative and quantitative analysis of urine for  
(i) bile salts (ii) ketone bodies

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**B.Pharmacy 2/4 II-Semester (Main) Examination, April 2015**

**Subject : Pharmacognosy-I**

**Time : 3 Hours**

**Max. Marks: 70**

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

- 1 (a) (i) Define crude drug. Discuss the various methods of classification of crude drugs. (10)  
(ii) Write a note on storage of crude drugs. (4)  
**OR**
- (b) (i) Explain the endogenous factors causing variations in drug constituents. (7)  
(ii) What are plant hormones? Write their applications. (7)
- 2 (a) (i) Discuss various methods of tracer studies. (7)  
(ii) Explain shikimic acid pathway in the biogenesis of various secondary metabolites. (7)  
**OR**
- (b) (i) Discuss the Biogenesis of various isoprenoid compounds. (7)  
(ii) Write a note on carbohydrate synthesis. (7)
- 3 (a) (i) Discuss different types of evaluation of crude drugs. (10)  
(ii) Write a note on Adulteration. (4)  
**OR**
- (b) (i) How do you determine moisture content and foreign organic matter in a crude drug? (8)  
(ii) Write a brief note on drug deterioration by living and non-living factors. (6)
- 4 (a) (i) Write Biological source, chemical constituents and uses of (A) Starch (B) Tragacanth (C) Bees Wax (D) Amla (2.5x4)  
(ii) What are Tannins? Classify them. (4)  
**OR**
- (b) (i) Give the classification of Fixed aids and fats. (4)  
(ii) Write the Biological source, chemical constituents and uses of (A) Agar (B) Isabgol (C) Neem oil (D) Carnauba wax (10)
- 5 (a) (i) Write the pharmacognostic study of cotton. (10)  
(ii) Write short notes on Honey. (4)  
**OR**
- (b) (i) Write the Biological sources, chemical constituents and uses of (A) Silk (B) Cod liver oil (C) Musk (D) Gelatin (2.5x4)  
(ii) Write about any one mineral origin drug. (4)

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**B. Pharmacy II Year II – Semester (Main) Examination, April 2015**

**Subject: Pharmaceutical Engineering – II**

**Time: 3 Hours**

**Max. Marks: 70**

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

- 1 (a) Discuss the principle, construction, working and applications of Hammer Mill with diagram. (10)  
(b) Write a note on size separation by settling. (4)  
**OR**  
(c) Write about construction and working of diffusion battery with sketch. (7)  
(d) Explain about cyclone separator with diagram. (7)
- 2 (a) Write about the classification of equipment used in evaporation. Explain about forced circulation evaporator. (3+1)  
(b) Explain about ideal solutions and real solutions. (4)  
**OR**  
(c) Discuss molecular distillation and azeotropic distillation. (4+4)  
(d) Write a note on HETP and factors influencing the efficiency of fractional distillation. (3+3)
- 3 (a) What is desorption and write its importance and techniques used for desorption? (4)  
(b) Discuss the principle, construction, working, uses, advantages, disadvantages of spray dryer with sketch diagram. (10)  
**OR**  
(c) Write a note on various crystal forms and crystal habits with diagrams. (5)  
(d) Explain in detail about circulating magma crystallizer. (9)
- 4 (a) What is the disadvantage of vortex formation in liquid mixing? Suggest methods to eliminate it. (6)  
(b) Write about triple roller mill and planetary mixer with sketch diagram. (4+4)  
**OR**  
(c) Write about the applications of ion exchange resins. (7)  
(d) Write about different types of devices for liquid-liquid mixing. (7)
- 5 (a) Define compaction and write about lubrication of die wall. (4)  
(b) What are process variables and discuss the measurement of any two variables. (10)  
**OR**  
(c) Explain about open loop and closed loop control systems in Automatic Process Control Systems with diagram. (6)  
(d) Write a note on measurement of punch forces and cohesion in compaction. (8)

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