

## FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, November 2020

## Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)

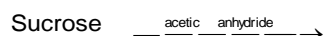
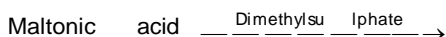
Time: 2 Hours

Max. Marks: 70

Note: Answer any four questions

(4 x 17 ½=70Marks)

- (a) What are anomers? Give two structural examples.  
(b) Complete the following reaction along with their structures:



- Write any eight pharmaceutical/medicinal importance of fats and oils.
- (a) Explain any four methods employed for isolation and extraction of fats/oils with appropriate schematic diagram.  
(b) List down the impurities present in crude fats/oils. Describe any four methods used for refining/purification of fats and oils.
  - (a) What is insulin and how the structure of insulin was elucidated.  
(b) Write down the structure and nomenclature of any two hydrophilic amino acids and any two Hydrophobic amino acids.  
(c) Explain how hydrogen bond and electrostatic forces helps in stabilizing secondary structures of proteins.
  - Explain any seven properties of amino acids along with appropriate chemical equations.
  - (a) Write the structure of flavones. Leucoanthocyanidin, flavonol. Flavanone, isoflavone and anthocyanidin nucleus. Write three color tests which are used to distinguish them.  
(b) Write the structure, nomenclature and synthesis of quercetin.
  - Explain how the structure of citral and camphor was elucidated along with their synthesis.
  - Explain how the structure of papaverine and ephedrine was elucidated along with their synthesis and suitable chemical equations.
  - Explain how the structure of caffeine and uric acid was elucidated along with their synthesis and suitable chemical equations.
  - What are steroidal contraceptives? Classify them along with structural examples, dosage regimen and mechanism of action.
  - Write the structure, and uses of cortisone, prednisone, deoxycorticosterone, disogenin, hecogenin, digitoxin and sodium glycocholate.

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**FACULTY OF PHARMACY**

**Code No.6244/CBCS**

**Code No. 6424/NON-CBCS**

**B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, November 2019**

**Subject: Pharmaceutical Engineering - II**

**Time: 2 Hours**

**Max. Marks: 70**

**Note: Answer any Four questions.**

**(4x17½=70Marks)**

1. (a) Explain the procedure to determine the particle size and particle size distribution by sieve analysis.  
(b) Differentiate between end runner mill and edge runner mill.
2. (a) Write construction and working of Podbielniak extractor with help of diagram.  
(b) Differentiate between maceration and percolation process.
3. (a) Write the material and energy balances in evaporation process.  
(b) Write working principles of short tube evaporators.
4. (a) Explain the theories applied to binary mixtures in distillation process.  
(b) Explain the principle and working of steam distillation in large scale.
5. (a) Explain different stages in drying rate curve and mention the significance of EMC.  
(b) Write construction working of tray dryer.
6. (a) Describe the different gas absorption towers.  
(b) Explain the concept of two way flow through packed tower and mention the importance of flood point.
7. Explain different ion exchange resins principle of working and mention their applications in pharmacy.
8. (a) Classify different liquid-liquid mixing devices and mention their operation, advantages and drawbacks.  
(b) What is vortex formation and mention the preventive measures.
9. Describe the factors affecting strength of granules and tablets.
10. Explain the working principle of measurement devices for temperature and vacuum.

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**FACULTY OF PHARMACY**

**B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, November 2020**

**Subject: Pharmaceutical Biochemistry**

**Time: 2 Hours**

**Max. Marks: 70**

**Note: Answer any four questions.**

**(4 x 17<sup>1/2</sup>=70Marks)**

1. Explain production of ATP and its biological significance.
2. Explain how to determine free energy from equilibrium constant.
3. What are co-enzymes? Explain in detail about mechanism of action and applications of Co-enzymes and Iso-enzymes.
4. Explain about Glycolysis and Glyoxalate cycle.
5. (a) What are essential fatty acids? Explain about biosynthesis of unsaturated fatty acids.  
(b) Explain metabolism of cholesterol.
6. (a) Explain beta oxidation and oxidation of unsaturated fatty acids.  
(b) Explain about phospholipids and spingolipids.
7. (a) Explain DNA repair mechanism.  
(b) Explain physical and chemical mutagenesis.
8. Explain biosynthesis of RNA and DNA.
9. Explain the qualitative and quantitative analysis of urine for bile salts and albumin.
10. Explain role of cyclic  $\phi$  in enzyme activation.

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**FACULTY OF PHARMACY**

**B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, October 2020**

**Subject: Pathophysiology**

**Time: 2 Hours**

**Max. Marks: 70**

**Note : Answer any Four questions**

**(4 x 17<sup>1/2</sup> = 70 Marks)**

1. (a) Explain different causes of cell injury.  
(b) Write briefly about the mechanism of wound healing in skin.
2. (a) Explain the role of various chemical mediators of inflammation.  
(b) Discuss the process of atherosclerosis.
3. (a) Describe myocardial infraction its causes and management.  
(b) Define the term bronchial asthma and write its pathogenesis.
4. (a) Write briefly about acute renal failure.  
(b) Discuss the pathogenesis of angina pectoris.
5. (a) What is anaemia? Classify various types of anaemia along with its symptoms.  
(b) Write the pathogenesis of type-I Diabetes.
6. (a) Discuss the pathophysiology of Parkinson's disease.  
(b) What is Epilepsy? Explain its pathogenesis.
7. (a) Explain the pathogenesis of cancer.  
(b) Discuss the pathophysiology of Rheumatoid arthritis.
8. (a) Describe the causes and symptoms of osteoporosis.  
(b) What are the causes and symptoms of alcoholic liver disease?
9. (a) Discuss the symptoms and etiology of tuberculosis.  
(b) Write a note on AIDS.
10. (a) Discuss the causes and symptoms of syphilis.  
(b) Write the pathophysiology of leprosy.

# ST PAULS COLLEGE OF PHARMACY

**FACULTY OF PHARMACY****B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, July 2019****Subject: Pharmaceutical Chemistry  
(Chemistry of Natural Products)****Time: 3 Hours****Max.marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Explain how the straight chain structure, cyclic structure and configuration of glucose were elucidated along with appropriate chemical equations. 12  
 b) Define polysaccharides. Give one specific structural example. 2  
**OR**  
 c) Define fats and oils with a specific structural example. Explain the various chemical reactions of fats / oils along with their significance. 2+12
- 2 a) Define proteins. Write the structure and nomenclature of any two proteins. 4  
 b) Write the structure, chemistry and therapeutic uses of thyroxine. 10  
**OR**  
 c) Write the structure, nomenclature, mechanism of action and uses of oxytocin. 7  
 d) Explain the chemistry and uses of insulin. 7
- 3 a) What are flavonoids? Explain the general methods of structure elucidation of flavonoids. 10  
 b) Write the biological significance of flavonoids. 4  
**OR**  
 c) Write the structure, nomenclature, mechanism of action and uses of quercetin. 8  
 d) Write the general method of isolation and purification of terpenoids. 6
- 4 a) Explain whether the following statements, are true or false along with suitable chemical equations: 5  
 i) Ephedrine reacts with nitrous acid to form a diazonium salt.  
 ii) Papaverine reacts with cold dilute potassium permanganate to form veratric acid.  
 b) What are alkaloids? Explain the general method for elucidating the structure of alkaloids. 9  
**OR**  
 c) Explain how the structure of atropine can be elucidated by chemical reactions and spectral analysis. 10  
 d) Write the structure, nomenclature and uses of quinine sulphate and caffeine. 4
- 5 a) Distinguish between steroids and sterol. Explain the stereochemistry of steroids with structural examples. 8  
 b) Write the structure, nomenclature and uses of prednisone and aldosterone. 6  
**OR**  
 c) Explain the chemistry and biological role of cholesterol and sodium taurocholate. 10  
 d) Write the structure and uses of ethinyl estradiol and norgestrel. 4

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**FACULTY OF PHARMACY**

**B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, August 2019**

**Subject : Pathophysiology (Elective)**

**Time : 3 Hours**

**Max. Marks: 70**

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

- 1 (a) Explain different causes of cell injury.  
(b) What are the factors influencing the healing of wounds?  
**OR**  
(c) Discuss about mechanism of inflammation.
- 2 (a) Write the pathogenesis of hypertension.  
(b) Write the pathogenesis of atherosclerosis.  
**OR**  
(c) Write the Etiopathogenesis of angina pectoris.  
(d) Write the Pathogenesis of Chronic renal failure.
- 3 (a) Write the pathogenesis of type-I Diabetes.  
(b) Explain the pathophysiology of Parkinsonism.  
**OR**  
(c) Explain the pathogenesis of iron deficiency anemia and megaloblastic anemia.  
(d) Discuss Pathology of schizophrenia.
- 4 (a) Discuss Pathogenesis of Rheumatoid Arthritis or gout.  
(b) Write about etiopathogenesis of Jaundice.  
**OR**  
(c) Write about Etiopathogenesis of cancer.  
(d) Explain Pathophysiology of Inflammatory bowel disease.
- 5 (a) Write a note on AIDS.  
(b) Write a note on etiopathogenesis of Meningitis.  
**OR**  
(c) Write about Etiopathogenesis of gonorrhoea.  
(d) Write about Etiopathogenesis of typhoid.

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**FACULTY OF PHARMACY**

**B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, August 2019**

**Subject: Green Chemistry (Elective)**

**Time: 3 Hours**

**Max. Marks: 70**

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

1. a) Explain basic principles of green chemistry with suitable chemistry. 14  
OR  
b) Discuss the various synthetic approaches of green chemistry.
2. a) Explain how the following drugs are synthesized by green chemistry methods giving principle and procedure. 14  
i) Paracetamol    ii) Ibuprofen    iii) Aspirin  
OR  
b) Write a note on  
i) Phase transfer catalysts    ii) Ionic liquids
3. a) Discuss the principle and process involved in Fried rearrangement and Metal halide reduction in microwave irradiation method. 14  
OR  
b) Discuss the principle and process involved in strecker synthesis and Reformats reaction in Ultra sonification technique.
4. a) Discuss the future trends in green chemistry. 14  
OR  
b) Discuss the principle and process involved in solid supported reactions giving suitable examples.
5. a) By giving suitable examples, explain Wurtz synthesis and Micheal addition using water as solvent. 14  
OR  
b) Write a note on solvent less organic synthesis with suitable examples.

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**FACULTY OF PHARMACY****B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, July 2019****Subject: Biostatistics (Pharmacostatistics)****Time: 3 Hours****Max.marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Define a Mean, Median and mode. 5  
 b) From the following data relating to the marks, find mean, median and mode? 9

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	4	12	41	27	13	9	4

**OR**

- c) Define correlation? Explain the various types of correlation? 8  
 d) Explain about histograms. 6
- 2 a) Write a note on  
 i) Stem and leaf plots 7  
 ii) Box and whisker plots 7

**OR**

- b) What do you mean by a normal distribution? State its importance and various properties with suitable example? 14
- 3 a) Explain in detail:  
 i) 2-D and 3-D diagrams 7  
 ii) Bar and Pie diagram 7

**OR**

- b) Write a note on:  
 i) Stratified sampling 14  
 ii) Random sampling methods
- 4 a) Explain the following: 14  
 i) Point estimation  
 ii) Bayesian estimation

**OR**

- b) Explain about the parametric and non-parametric tests. 14
- 5 a) Explain briefly about "Randomized block diagram"? 7  
 b) Write the applications of Chi-square test. 7
- OR**
- c) Explain about analysis of variance and its importance. 7  
 d) Explain t-test and importance with an example. 7

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## FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, July 2019

## Subject: Pharmaceutical Biochemistry

Time: 3 Hours

Max.marks: 70

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

- 1 a) Explain the biochemical organization of cell with a neat labeled diagram. 10  
b) Write about energy rich compounds. 4

**OR**

- c) Explain Passive and Active transport mechanisms across the cell membrane. 10  
d) Explain about free energy concept. 4

- 2 a) Define and classify enzymes with examples. Write the clinical applications of enzymes. 10  
b) Explain the process of enzyme inhibition. 4

**OR**

Explain:

- c) Glycolysis 7  
d) Krebs Cycle 7

- 3 a) Write briefly about the biosynthesis of ketone bodies and add a note on keto acidosis. 8  
b) Explain the regulation of cholesterol biosynthesis. 6

**OR**

- c) Explain the  $\beta$  – oxidation of fatty acids. 7  
d) Write short note on fate of dietary lipids. 7

- 4 a) Discuss the metabolism of amino acids. 8  
b) Write a note on urea cycle. 6

**OR**

Write short note on:

- c) Protein synthesis 8  
d) DNA repair mechanism 6

- 5 a) Explain various qualitative tests to detect abnormal constituents in urine. 7  
b) Explain principle, procedure involved in the quantitative estimation of  
i) Glucose, ii) Biluribin. 7

**OR**

- c) Explain the principle, procedure, involved in the quantitative estimation of  
i) SGPT, ii) Urea. 9  
d) Discuss the role of cyclic AMP in enzyme activation. 5

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## FACULTY OF PHARMACY

B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, July 2019

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 ball mill with neat labeled diagram. 8  
 b) Explain principle, construction and working of diffusion battery. 6  
**OR**  
 c) Discuss the factors affecting selection and efficiency of extraction. 6  
 d) With a neat labeled diagram, explain the designing and operation of bag filters. 8
- 2 a) Write the principle involved in distillation under reduced pressure along with advantages and disadvantages. 7  
 b) Explain the theory and working principle involved in fractional distillation. 7  
**OR**  
 c) Explain theory, equipment and applications of steam distillation. 8  
 d) Write principle, construction and working of climbing film evaporator. 6
- 3 a) Classify dryer. Write principle, construction, working, applications, advantages and disadvantages of freeze dryer. 10  
 b) Explain two phase flow through packed towers in gas absorption. 4  
**OR**  
 c) Explain mechanism of crystallization and write Mier's super saturation theory with its limitations. 8  
 d) Write construction and working principle of Swenson Walker crystallizer. 6
- 4 a) Classify mixers used in solid-solid mixing and write construction and working of planetary mixer. 8  
 b) Write about different types of impellers used in liquid-liquid mixing. 6  
**OR**  
 c) Explain principle, construction and working of triple roller mill. 7  
 d) Write the principle and applications of ion exchange resin. 7
- 5 a) Define automatic process control system. Explain about open and closed loop systems with diagrams. 6  
 b) Describe the measurement techniques for temperature control. 8  
**OR**  
 c) Explain the factors affecting strength of granules and tablets. 14

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**FACULTY OF PHARMACY****B. Pharmacy IV-Semester (CBCS) (Suppl.) Examination, February 2019****Subject : Biostatistics (Pharmacostatistics)****Time : 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Explain about Mean, Median. (7)  
 (b) Explain about Histogram and OGIVE curve (7)

**OR**

- 2 Find Mean, Median and Mode to the following data. (14)

Class Interval	0-20	20-40	40-60	60-80	80-100
Frequency	18	27	45	25	15

- 3 Explain about  
 (a) Normal distribution and its properties (8)  
 (b) Stem and Leaf Plots (6)

**OR**

- 4 (a) Define Binomial Distribution and Poisson Distributions. (8)  
 (b) Explain about Box and Whisker plots. (6)

- 5 Explain about : (14)  
 (a) Random sampling Methods  
 (b) Cluster sampling methods

**OR**

- 6 Explain about:  
 (a) 2-D diagrams (14)  
 (b) Stratified Random Sampling.

- 7 Define: (14)  
 (a) Type-I and Type-II Errors  
 (b) Explain the steps which are involved in testing of Hypothesis.

**OR**

- 8 Explain about  
 (a) t-test for difference of Means and paired t-test. (10)  
 (b) F-test (4)

- 9 Discuss about:  
 (a) Basic Principles of Design of Experiments. (7)  
 (b) Explain about Randomised Block design of experiments. (7)

**OR**

- 10 (a) Explain about Latin square Design with ANOVA Table. (8)  
 (b) Explain about assignable causes and chance causes. (6)

**FACULTY OF PHARMACY****B. Pharmacy IV – Semester (CBCS) (Suppl.) Examination, February 2019****Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)****Time: 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks**

1. a) Elucidate the structure of Fructose. (8)  
b) Describe the reaction of carbohydrates with Phenyl hydrazine. (6)
- OR**
2. a) Define and classify the lipids. Explain the IP analytical methods of oils. (8)  
b) Classify carbohydrates and write about the color reactions of carbohydrates. (6)
3. a) Discuss about protein synthesis. (8)  
b) Write a note on Insulin. (6)
- OR**
4. a) Give the structure elucidation of Thyroxin. (9)  
b) Write the structure, chemistry and therapeutic uses of Oxytocin. (5)
5. a) Write the constitution of Camphor. (9)  
b) Write the source and structure of Citral and Arbutin. (5)
- OR**
6. a) Write the constitution of Menthol. (9)  
b) Define and explain isoprene and special isoprene rule. (5)
7. a) Define alkaloids and write their identification tests. (4)  
b) Write about isolation of caffeine from tea leaves and elucidate the structure of caffeine. (10)
- OR**
8. a) Write the structure and uses of Papaverine and Uric acid. (4)  
d) Write the structural elucidation of Atropine. (10)
9. a) Write the classification and biological significance of bile acids. (10)  
b) Write a note on progestational agents. (4)
- OR**
10. a) Write a note on oral contraceptives. (6)  
b) Define and classify steroids. Write the structures and therapeutic uses of Corticosteroids. (8)

**FACULTY OF PHARMACY**

**B. Pharmacy IV-Semester (CBCS) (Suppl.) Examination, February 2019**

**Subject : Pathophysiology (Elective)**

**Time : 3 Hours**

**Max. Marks: 70**

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

- 1 a) What are the causes of cell injury? (7)  
b) What is hypertrophy and hyperplasia? (7)  
**OR**
- 2 a) Explain the role of various chemical mediators of inflammation. (7)  
b) Write briefly about the principle of wound healing in skin. (7)
3. a) What is hypertension? Explain its pathogenesis. (7)  
b) Discuss the etiology, pathogenesis of acute or renal failure. (7)  
**OR**
- 4 a) Discuss the pathogenesis of Asthma. (7)  
b) Describe angina pectoris its causes and symptoms. (7)
- 5 a) What is anaemia? Classify various types of anaemia along with its symptoms. (7)  
b) Discuss the pathophysiology of Diabetes mellitus. (7)  
**OR**
- 6 a) Discuss the pathophysiology of peptic ulcer. (7)  
b) Discuss the pathophysiology epilepsy or Parkinson's disease. (7)
- 7 a) Define cancer. Discuss the pathophogenesis of cancer. (7)  
b) Discuss the pathophysiology of Rheumatoid arthritis or gout. (7)  
**OR**
- 8 a) Describe the cause and symptoms of Jaundice. (7)  
b) Describe various symptoms, causes and treatment of Osteoporosis. (7)
- 9 a) Discuss the symptoms and etiology of AIDS. (7)  
b) Define typhoid and its pathophysiology. (7)  
**OR**
- 10 a) Explain the causes and symptoms of Syphilis. (7)  
b) Write the pathophysiology of Urinary Tract infections. (7)

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**FACULTY OF PHARMACY**

**B. Pharmacy IV-Semester (CBCS) (Suppl.) Examination, February 2019**

**Subject : Green Chemistry (Elective)**

**Time : 3 Hours**

**Max. Marks: 70**

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

- 1 Describe the history and development of green chemistry.  
**OR**
- 2 Explain basic principles of green chemistry with suitable examples.
- 3 Discuss about Michael and Wurtz synthesis.  
**OR**
- 4 Solvent less organic synthesis.
- 5 Discuss about microwave mediated reactions.  
**OR**
- 6 Ultrasonic mediated reactions.
- 7 Write a note on Biocatalytic reactions  
**OR**
- 8 Write a note on Phase-transfer catalysts.
- 9 Discuss the green synthesis for (a) Paracetamol or (b) Aspirin  
**OR**
- 10 Discuss the green synthesis for (a) Ibuprofen (b) Nicotinic acid

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**FACULTY OF PHARMACY**

**B. Pharmacy IV – Semester (CBCS) (Supplementary) Examination, February 2019**

**Subject: Pharmaceutical Biochemistry**

**Time: 3 Hours**

**Max. Marks: 70**

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

1. a) Explain about the organization of cell. 7M  
b) Explain Redox potential and free energy constant. 7M  
**OR**
2. Explain the mechanism of active and passive transport. 14M
3. Explain the phosphate pathway and its significance. 14M  
**OR**
4. Explain the following: 14M  
a) Glycogenolysis  
b) Electron transport
5. Explain Biosynthesis of saturated and unsaturated fatty acids. 14M  
**OR**
6. a) What are ketone bodies? Explain biosynthesis of ketone bodies 7M  
b) Explain the fate of dietary lipids. 7M
7. Explain Biosynthesis of purines and pyrimidines. 14M  
**OR**
8. a) What are nucleosides? 4M  
b) Write a note on transcription and translation. 10M
9. Write the principle of Qualitative and Quantitative analysis of blood for SGPT, Bilerubin and glucose. 14M  
**OR**
10. Explain Qualitative and Quantitative analysis of Urine for albumin, ketone bodies, glucose. 14M

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**FACULTY OF PHARMACY****B. Pharmacy IV – Semester (CBCS) (Suppl.) Examination, February 2019****Subject: Pharmaceutical Engineering - II****Time: 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks**

- 1 a) Write procedure for determination of particle size by sieving method along with representation of particle size distribution. 7  
 b) Write construction and working of Double Cone Classifier. 7  
**OR**
- 2 a) Explain the theories of size reduction. 6  
 b) Write the construction and working principle of any one fine grinder. 8
3. Describe the construction, working principle, advantage and disadvantages of falling film and climbing film evaporators with the help of diagrams. 14  
**OR**
- 4 a) Explain the theory of rectification 6  
 b) Describe the construction, working principle and limitations of molecular distillation unit. 8
- 5 a) Write the construction, working principle, advantage and disadvantages of freeze dryer 8  
 b) Explain the stages in drying rate curve and mention their importance. 6  
**OR**
- 6 a) Explain the importance of gas absorption in pharmacy. 4  
 b) Describe the steps involved in crystallization process. 5  
 c) Explain the concept of caking of crystals and its prevention. 5
- 7 a) Explain different types of mixing impellers and their characteristics. 5  
 b) Write construction and working of triple roller mill along with diagram. 9  
**OR**
- 8 a) Describe the sampling considerations during mixing unit operation. 6  
 b) Write the construction, working principle and advantages of any solid liquid mixer 8
9. a) Explain the factors influencing strength of tablets. 7  
 b) Describe the transmission of forces through powders during compaction. 7  
**OR**
- 10 a) Write the mechanism of feed forward and feedback controls in pharmaceutical field. 6  
 b) Explain the approaches to measure pressure. 8

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## FACULTY OF PHARMACY

B. Pharmacy IV – Semester (CBCS) (Main) Examination, August 2018

Subject: Pharmaceutical Biochemistry

Time: 3 Hours

Max. Marks: 70

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

- 1 a) Explain about the organization of cell. 7  
b) Explain Redox potential and free energy constant. 7

**OR**

- c) Explain the mechanism of active and passive transport. 14  
2. a) Explain penstose phosphate pathway and its significance. 14

**OR**

- c) Explain any two of following: 14

i. Glycogenolysis

ii. Electron transport

iii. Glycogenesis

- 3 a) Explain Biosynthesis of saturated and unsaturated fatty acids. 14

**OR**

b) What are ketone bodies? Explain biosynthesis of ketone bodies. 7

c) Explain the fate of dietary lipids. 7

- 4 a) Explain Biosynthesis of purines and pyrimidines 14

**OR**

b) What are nucleosides? 4

c) Write a note on transcription and translation 10

5. a) Write the principle of Qualitative and Quantitative analysis of blood for SGPT,  
Bilerubin and glusocse 14

**OR**

b) Qualitative and Quantitative analysis of Urine for albumin, ketone bodies, glucose. 14

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## FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Main) Examination, July 2018

## Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)

Time: 3 Hours

Max. Marks: 70

1. a. Explain whether the following statements are true or false along with appropriate structure and/or chemical equations: (3×2 = 6)
- Fructose is a reducing sugar and maltose is a non reducing sugar.
  - Glyceryl trioleate becomes solid upon treatment with hydrogen and nickel at 150-200 °C under pressure.
  - Castor oil shows an acetyl value of less than one.
- b. Write the principle and significance of Acid value, ester value, saponification value and iodine number in analysis of fats and oils (8)
- OR**
- c. Write the structure, and reactions of glucose and fructose (6)
- d. Explain the various methods employed for the isolation and purification of fats and oils. (8)
2. a. Explain the primary, secondary, tertiary and quaternary structure of proteins. (14)
- OR**
- b. Explain the various methods of end group analysis for proteins. (8)
- c. Describe the nomenclature of proteins with appropriate examples (3)
- d. Write the structure, nomenclature and uses of oxytocin. (3)
3. a. Explain how the structure of quercetin can be established by chemical reactions and spectral analysis. (8)
- b. Write the structure, nomenclature and uses of menthol and citral. (6)
- OR**
- c. Write the structure, nomenclature and uses of amygdalin and arbutin. (6)
- d. Explain the methods of isolation of Terpenes (Volatile oils) (8)
4. a. Explain how the structure of Atropine can be elucidated with suitable chemical reactions and spectral analysis. (14)
- OR**
- b. Write the importance of the following in analysis/identification of alkaloids. (14)
- Ziesel's method
  - Herzig-Meyer method
  - Von Braun's method
  - Dragendorff's test
5. a. Write the structure and uses of stigmasterol, disogenin, hecogenin and digitoxin. (8)
- b. What are glucocorticoids? Write the structure, nomenclature, biological role and uses of cortisone. (6)
- OR**
- c. Write structure chemistry and Pharmacological actions of cardiac glycosides (14)

**FACULTY OF PHARMACY****B. Pharmacy IV-Semester (CBCS) (Main) Examination, August 2018****Subject : Pathophysiology (Elective)****Time : 3 Hours****Max. Marks: 70*****Note: Answer all questions. All questions carry equal marks.***

- 1 a) Describe Cell injury. What are the causes of cell injury? (7)  
 b) Write briefly about the basic mechanism involved in the process of inflammation. (7)
- OR**
- c) Describe the process of wound healing. (7)  
 d) Discuss the pathophysiology of Atherosclerosis. (7)
- 2 a) Describe myocardial infraction its causes and management. (7)  
 b) Define the term Bronchial Asthma. Write the pathogenesis with a neat diagram (7)
- OR**
- c) Discuss the pathogenesis of COPD. (7)  
 d) Write briefly about chronic renal failure. (7)
- 3 a) Explain the cause of megaloblastic anaemia. (7)  
 b) Write a note on polycystic ovary syndrome. (7)
- OR**
- c) Discuss the pathophysiology of Alzheimer's or Parkinson's disease. (7)  
 d) Discuss the pathophysiology epilepsy or peptic ulcer. (7)
- 4 a) What are the causes and symptoms of (14)  
 (i) Inflammatory Bowel disease  
 (ii) Jaundice
- OR**
- c) Explain pathophysiology of (14)  
 (i) Rheumatoid arthritis or gout  
 (ii) Pathyogenesis of cancer
- 5 a) Discuss the pathogenesis of meningitis. (7)  
 b) Discuss the pathophysiology of tuberculosis. (7)
- OR**
- c) Discuss the causes and symptoms of Gonorrhoea. (7)  
 d) Discuss the life cycle of organism causing leprosy. (7)

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**FACULTY OF PHARMACY**

**B. Pharmacy IV-Semester (CBCS) (Main) Examination, August 2018**

**Subject : Green Chemistry (Elective)**

**Time : 3 Hours**

**Max. Marks: 70**

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

- 1 (a) Discuss the basic principles of green chemistry.  
**OR**  
(b) Mention the various synthesis approaches of green chemistry.
- 2 (a) By giving principle and process involved, discuss two reactions each for Michael and Wurtz synthesis.  
**OR**  
(b) Discuss about various alternative solvents used in green chemistry strategies.
- 3 (a) Write a note on microwave mediated reactions.  
**OR**  
(b) Ultrasonic mediated reactions.
- 4 (a) Write a note on phase transfer catalysis.  
**OR**  
(b) Write a note on Ionic liquids.
- 5 Explain the Green synthetic strategies for  
(a) Paracetamol and Ibuprofen  
**OR**  
(b) Aspirin and Nicotinic acid.

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**FACULTY OF PHARMACY****B. Pharmacy IV-Semester (CBCS) (Main) Examination, August 2018****Subject : Biostatistics (Pharmacostatistics)****Time : 3 Hours****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Explain about : (14)
- |            |                         |
|------------|-------------------------|
| (i) Mean   | (ii) Median             |
| (iii) Mode | (iv) Standard deviation |

**OR**

- (b) Explain about
- |                                  |     |
|----------------------------------|-----|
| (i) HISTOGRAM and OGIVE curves   | (8) |
| (ii) Correlation and Regression. | (6) |

- 2 (a) Explain about
- |                           |                           |     |
|---------------------------|---------------------------|-----|
| (i) Binomial Distribution | (ii) Poisson Distribution | (8) |
| (iii) Stem and leaf plots |                           | (6) |

**OR**

- (b) Explain about (14)
- |  |
|--|
| (i) Normal Distribution and its properties |
| (ii) Sub divided Bar and Pie diagrams      |

- 3 (a) (i) Describe Stratified Random Sampling and Systematic Sampling methods. (7)
- (ii) Bar and Pie diagram (7)

**OR**

- (b) Explain
- |                                       |     |
|---------------------------------------|-----|
| (i) Sampling and Non-Sampling Errors. | (7) |
| (ii) Random Sampling methods.         | (7) |

- 4 (a) Define: (14)
- |                                      |                            |
|--------------------------------------|----------------------------|
| (i) Type-I & Type-II Errors          | (ii) Level of Significance |
| (iii) t-test for difference of Means |                            |

**OR**

- (b)(i) Explain about Point estimation and interval estimation. (8)
- (ii) Bayesian estimation (6)

- 5 (a) (i) Explain about Chi-Square test for independence of Attributes. (7)
- (ii) Explain about assignable and chance causes. (7)

**OR**

- (b) (i) Explain basic Principles of design of experiments. (7)
- (ii) Explain about Randomised Block design. (7)

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## FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Main) Examination, July 2018

## Subject: Pharmaceutical Engineering - II

Time: 3 Hours

Max. Marks: 70

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

1. a) How do you determine particle size of powders and its size distribution by sieve analysis. (8)
- b) Write a note on: (i) Sedimentation. (ii) Elutriation. (6)
- (OR)**
- c) Write construction and working principle of cyclone separator. (6)
- d) Explain principle, construction and working of pod biel niak extractor with neat labeled diagram. (8)
- 2 a) Discuss the factors affecting evaporation. (5)
- b) Write theory, equipment and applications of molecular distillation. (9)
- (OR)**
- c) Write in detail about fractionating columns used in fractional distillation. (7)
- d) Classify evaporators. Explain principle, construction and working of forced circulation evaporator. (7)
- 3 a) Explain the theory of drying with a detailed note on drying rate curve. (7)
- b) Explain the principle, construction, working, applications, advantages and disadvantages of fluidized bed dryer. (7)
- (OR)**
- c) What is caking of crystals and how it can be prevented? (6)
- d) Write about properties of tower packing materials in gas absorption and tower construction. (8)
- 4 a) Write objectives of mixing. Explain about triple Roller Mill. (8)
- b) Explain principle, construction and working of sigma blade mixer. (6)
- (OR)**
- c) What is vortex formation? Write the disadvantages of vortex formation in liquid mixing and methods to prevent it (6)
- d) Give the mixers used for mixing of immiscible liquids. Explain principle, construction and working of Silverson emulsifier. (8)
- 5 a) Write the types of process variables. Describe the equipment used for pressure control. (8)
- b) Explain adhesion and cohesion of particles. (6)
- (OR)**
- c) Write a note on measurement of punch forces. (6)
- d) Explain about energy involved in granule compaction with a note on FD curve. (8)

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