

B. Pharmacy 3rd Semester-2022
Pharmaceutical Organic Chemistry II

Time: Three hours

M. Marks: 75

- Note:** 1. It is compulsory to attempt all questions of SECTION-A.
 2. Answer all parts of a question/section at one place only.
 3. Draw neat and well-labelled diagrams wherever necessary.

Important: 4. Use only blue/black ink pen for attempting answers. Use of pencil is prohibited.

Section- A

Q.1 Multiple choice questions. (Attempt all questions).

1x20=20

- (i) **What is Huckel's rule?**
 (a) $3n+2$ (b) $4n+2$
 (c) $2n+2$ (d) $n+2$
- (ii) **Hydroxybenzene also called as:**
 (a) Cresol (b) Quinol
 (c) Phenol (d) Resorcinol
- (iii) **Compounds which contain an -OH group in a side chain attached to an aromatic ring are called:**
 (a) Phenol (b) Aromatic phenol
 (c) Aromatic alcohol (d) None of the above
- (iv) **Which of the following test is not qualitative test for phenols?**
 (a) Ferric chloride test (b) Melzer test
 (c) Leak test (d) Lieber Mann test
- (v) **What is chemical formula of saccharin?**
 (a) $C_7H_6NO_3S$ (b) $C_7H_5NO_3S$
 (c) $C_7H_4NO_3S$ (d) None of the above
- (vi) **What is chemical formula of trichloroacetaldehyde?**
 (a) CCl_2CHO (b) CCl_3OH
 (c) CCl_3CHO (d) CCl_4OH
- (vii) **Give an answer in one word which used in killing mosquito and other insects:**
 (a) Pain killers (b) Insecticides
 (c) Disinfectant (d) None of the above
- (viii) **Benzene structure are not drawn possible as:**
 (a) Cyclic structure (b) Straight-chain structure
 (c) Kekule's structure (d) None of the above
- (ix) **These (E+) symbol is denoted as:**
 (a) Nucleophile (b) Electrophile
 (c) Both a and b (d) None of the above
- (x) **DDT used for:**
 (a) Insecticide (b) Pesticides
 (c) Both a and b (d) None of these
- (xi) **The formula of cresol is:**
 (a) $C_6H_5OHHCH_4$ (b) $C_6H_5OHCH_3$
 (c) $C_6H_5OHCH_2$ (d) $C_6H_5OHCH_7$
- (xii) **Napthelene nucleus show:**
 (a) 3 Benzene (b) 2 Benzene
 (c) 4 Benzene (d) 5 Benzene
- (xiii) **Sulphur trioxide in sulphuric acid is called _____, which is a very corrosive material:**
 (a) Oleum (b) Arenium ion
 (c) Nitronium ion (d) Benzene
- (xiv) **Which of these is not a lipid?**
 (a) Fats (b) Oils
 (c) Proteins (d) Waxes

PTO for the remaining questions.

- (xv) **Beta-oxidation of fatty acids occurs in:**
 (a) Peroxisome (b) Peroxisome and mitochondria
 (c) Mitochondria (d) Peroxisome, mitochondria and ER
- (xvi) **In fats, the number of OH groups can be expressed as:**
 (a) Reichert-Meissel number (b) Polenske number
 (c) Iodine number (d) Acetyl number
- (xvii) **The degree of unsaturation of lipids can be measured as:**
 (a) Iodine number (b) Saponification number
 (c) Reichert Meissel number (d) Polenske number
- (xviii) **The specific gravity of lipid is:**
 (a) 1.5 (b) 1.0
 (c) 0.8 (d) 0.2
- (xix) **Cycloalkanes are associated with the general formula called _____:**
 (a) C_nH_{2n+2} (b) $C_nH_{2(n+2)}$
 (c) C_nH_{2n+1} (d) $C_nH_{2(n+1)}$
- (xx) **Identify the incorrect statement regarding cycloalkanes.**
 (a) These have sp^3 hybridized carbons (b) These have tetrahedral bond angles
 (c) Stability of the cycloalkanes varies directly with their respective size (d) These undergo nucleophilic substitution reactions

Section-B

(Long answer type questions: Answer any two questions out of the following three questions).

10x2=20

- Q.2 Define the term electrophilic aromatic substitution reaction. Discuss the effect of substituent's on reactivity. Explain the mechanism of Friedel-Craft's Alkylation with their limitations. 10
- Q.3 What are aromatic amines? Give any three methods of preparation of aromatic amines. Write a note on basicity of aromatic amines 10
- Q.4 What are oils and fats? Give the classification of oils with examples. Enlist the analytical of fats and oils with their significance. 10

Section-C

(Short answer type questions: Answer any seven questions, out of the following nine questions).

5x7=35

- Q.5 Discuss the orientation effect of hydroxyl and amino group in benzene. 5
- Q.6 Explain any three methods of synthesis of anthracene. 5
- Q.7 Explain the reaction and mechanism of halogenations of benzene. 5
- Q.8 What is acidity? Discuss the effect of substituent on acidity on aromatic acids. 5
- Q.9 Give any two methods of preparation and chemical reactions of aromatic acid. 5
- Q.10 Describe any one method to determine iodine value with its significance. 5
- Q.11 Define and classify poly nuclear hydrocarbons. Give four chemical reactions of anthracene. 5
- Q.12 Write the structure and medicinal uses of naphthalene, anthracene, diphenylmethane and phenanthrene. 5
- Q.13 Write a note on hydrolysis and hydrogenation of oil. 5

Roll No.....

May, 2022/30317

B. Pharmacy 3rd Semester-2022
Pharmaceutical Microbiology

Time: Three hours

M. Marks: 75

- Note: 1. It is compulsory to attempt all questions of SECTION-A.
2. Answer all parts of a question/section at one place only.
3. Draw neat and well-labelled diagrams wherever necessary.

Important: 4. Use only blue/black ink pen for attempting answers. Use of pencil is prohibited.

18 SECTION-A

- Q.1 (a) What are the factors affecting the resolution power of a microscope? ∞ 2x10=20
(b) Which stain can be used to demonstrate the structure of a spore? ∞
(c) What is the nutritional nature of Escherichia coli? (2)
(d) What is the function of a 'Maintenance Culture Medium'?
(e) Name the part of the growth curve showing a rapid growth of bacteria. (2)
(f) Define Mycology. (2)
(g) Name the causative agent of Plague.
(h) What is the main use of 'Sabouraud Medium'? (2)
(i) Define the attenuation of a pathogen.
(j) Name the pathogen which causes tuberculosis in humans. *Micro bacterium tuberculosis*

16 SECTION-B

Long answer type questions. Answer any two questions out of the following three questions. 10x2=20

- Q.2 Define mutation and discuss the factors affecting this process in bacteria. 10
Q.3 Discuss the steps involved in the sterilization by moist heat. Explain its applications, merits and demerits. 10
Q.4 Briefly explain the method involved in the microbiological assay of Streptomycin. 10

SECTION-C

Short answer type questions. Answer any seven questions out of the following nine questions. 5x7=35

- Q.5 Discuss the composition and applications of an 'Enriched Culture Medium'. (2) 5
Q.6 Explain the method for determining the viable bacterial count in a drug product. 5
Q.7 Briefly explain the technique for performing the 'Phenol Coefficient Test'. 5
Q.8 What are the nutritional requirements of fungi? (2) 5
Q.9 Discuss the method for carrying out the 'Sterility Test' on an injectable product. 5
Q.10 What are 'Cell Cultures'? Write their applications in the discovery and development of pharmaceutical products. 5
Q.11 Explain the method for the 'Microbial Stability Testing' of a substance. 5
Q.12 Briefly explain the salient features of the design and layout of an 'Aseptic Area'. (5) 5
Q.13 Discuss the method of cultivation for a pathogenic Virus. (2) 5

B. Pharmacy 3rd Semester-2022
Physical Pharmaceutics-I

Time: Three hours

M. Marks: 75

- Note:** 1. It is compulsory to attempt all questions of SECTION-A.
2. Answer all parts of a question/section at one place only.
3. Draw neat and well-labelled diagrams wherever necessary.

Important: 4. Use only blue/black ink pen for attempting answers. Use of pencil is prohibited.

Section- A

Q.1 Multiple choice questions. (Attempt all questions).

1x20=20

- (i) **Molar refraction is _____ property:**
(a) Additive (b) Additive and constitutive
(c) Colligative (d) Constitutive
- (ii) **The following is applicable to supercritical fluids:**
(a) Decreased viscosity than liquids (b) Decreased density than liquids
(c) Increased viscosity than gases (d) All of the above
- (iii) **_____ is a process in which vaporization of liquid mixture gives a mixture of constituents from which desired one is separated in pure form:**
(a) Azeotropic distillation (b) Steam distillation
(c) Fractional distillation (d) Binary distillation
- (iv) **Amorphous substance do not have _____.**
(a) Sharp melting point (b) Characteristic geometrical shape
(c) Regularity of the structure (d) All of the above
- (v) **Liquid crystals have applications in:**
(a) Extraction temperature (b) Monitoring stripes
(c) Synthesis of co-crystals (d) Both a and b
- (vi) **If the H⁺ concentration is 0.00001 M/l, what is the pH of the solution?**
(a) 9 (b) 5
(c) 14 (d) None of the above
- (vii) **For acidic drug solution containing 50% each of ionised and unionised drug, HendersonHasselbalch equation can be modified to:**
(a) $\text{pH} = 1/2 \text{ pKa}$ (b) $\text{pH} = \text{pKa}$
(c) $\text{pH} = 2\text{pKa}$ (d) $\text{pH} = \text{pKa} + \log(\text{ionised}/\text{unionised})$
- (viii) **Which of the following statements is correct with regards to the solubility of gases in water:**
(a) Increases with increase in pressure (b) Increases by addition of non-electrolytes
(c) Increases with increase in temperature (d) Increases in case of chemical reaction
- (ix) **The ratio of the increment (amount added) of strong acid or base to the small change in pH (ΔpH) brought about by this addition is termed as:**
(a) Buffer index (b) Buffer value
(c) Buffer efficiency (d) All of the above
- (x) **The physical properties which depends upon the sum of the properties of all the constituents of the solution, are called:**
(a) Constitutive properties (b) Colligative properties
(c) Additive properties (d) None of these
- (xi) **Example of colligative properties are:**
(a) Elevation in boiling point (b) Lowering of vapor pressure
(c) Osmotic pressure (d) All of the above
- (xii) **Those solutes which do not ionize in the solution and such solution cannot conduct electricity are called:**
(a) Electrolyte (b) Weak electrolyte
(c) Non electrolyte (d) Both a and b

PTO for the remaining questions.

- (xiii) The number of moles of solute per liter of solution is called:
 (a) Normality (b) Molarity
 (c) Mole fraction (d) None of the above
- (xiv) If one part of solute is dissolved in 1-10 parts of the solvent, then the solute will be:
 (a) Soluble (b) Sparingly soluble
 (c) Freely soluble (d) Non soluble
- (xv) In concentration expression method PPM stands for:
 (a) Parts per molarity (b) Parts per million
 (c) Parts per mole fraction (d) Both a and b
- (xvi) On the basis of concentration of solute present in the solution can be classified as:
 (a) Saturated (b) Unsaturated
 (c) Super saturated (d) All of the above
- (xvii) Solubility of gasses in liquids depends upon the following important factors:
 (a) Pressure (b) Temperature
 (c) Presence of salt (d) All of the above
- (xviii) Hydrolysis is the decomposition of a substance by the addition of _____:
 (a) Alcohol (b) Water
 (c) Glycerin (d) All of the above
- (xix) A solution that resists the change in pH by the addition of small amount of acid or base is called:
 (a) True solution (b) Ideal solution
 (c) Buffer solution (d) All of the above
- (xx) The science and technology of small particles is known as:
 (a) Rheology (b) Micromeritics
 (c) Physics (d) None of the above

SECTION-B

Long answer type questions. Answer any two questions out of the following three questions. 10x2=20

- Q.2 Discuss dielectric constant and dipole movement with their applications in pharmacy. 10
- Q.3 Define aerosols and inhalers. Explain methods for determining surface area. 10
- Q.4 Define number and weight distribution. Enumerate different methods of determining particle size. 10

SECTION-C

Short answer type questions. Answer any seven questions out of the following nine questions. 5x7=35

- Q.5 Define solubility. Explain the various factors affecting solubility of solids in liquids. 5
- Q.6 Define and derive Raoult's law. Write its applications. 5
- Q.7 Explain in detail about the different factors affecting the solubility of drugs. 5
- Q.8 Define azeotropic mixtures. With the help of neat diagram explain in detail fractional distillation process. 5
- Q.9 Describe the method of determining solubility of solids in liquids. 5
- Q.10 Define dissolution. Explain the different quantitative factors influencing solubility of drugs. 5
- Q.11 What are eutectic mixtures? Explain with examples. 5
- Q.12 Explain sublimation critical point. 5
- Q.13 Explain the determination of refractive index by Abbey's refractometer. 5

- Note: 1. It is compulsory to attempt all questions of Section-A.
2. Attempt any two questions from Section-B.
3. Attempt any seven questions from Section-C.

Important: 4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.

Section- A

1x20=20

Q.1 Multiple choice questions. (Attempt all questions).

- (i) For turbulent flow, Reynolds number is:
(a) <2000 (b) <3000
(c) >4000 (d) None of the above
- (ii) Hammer mill works on the principle of:
(a) Attrition (b) Shearing
(c) Impact (d) None of the above
- (iii) Liquid is atomized into small droplets in:
(a) Drum dryer (b) Spray dryer
(c) Both a and b (d) None of the above
- (iv) Mechanism of mixing via inversion of powder bed using blades is called as:
(a) Shear mixing (b) Convective mixing
(c) Diffusive mixing (d) All of the above
- (v) Type of filtration centrifuge is:
(a) Non perforated basket centrifuge (b) Perforated basket centrifuge
(c) Continuous centrifuge (d) All of the above
- (vi) Evaporator not suitable for thermos labile drugs:
(a) Falling film evaporator (b) Forced circulation evaporator
(c) Evaporating Pan (d) None of the above
- (vii) Stress induced corrosion is:
(a) Fretting corrosion (b) Pitting corrosion
(c) Crevice corrosion (d) All of the above
- (viii) An example of lyophilizing agent:
(a) Trehalose (b) Glucose
(c) Sucrose (d) None of the above
- (ix) Which one is not a composition of Pyrex glass?
(a) Silicon dioxide (b) Boron dioxide
(c) Lead silicate (d) Ampholytic
- (x) Treated soda lime glass type is:
(a) Type I (b) Type II
(c) Type III (d) Both b and c
- (xi) Flow pattern is not axial for the following impeller type:
(a) Turbines (b) Paddle
(c) Propeller (d) None of the above
- (xii) Aperture Size of sieve no. 8 is:
(a) 2mm (b) 4mm
(c) 1mm (d) 0.5mm
- (xiii) Zeotropic mixtures are separated by:
(a) Fractional distillation (b) Flash distillation
(c) Steam distillation (d) Fourier's law
- (xiv) Example of Shear mixer is:
(a) Sigma mixer (b) Triple roller mill
(c) Planetary mixer (d) None of the above

PTO for the remaining questions.

- (xv) Darcy's equation is applicable to:
 (a) Evaporation process (b) Mixing process
 (c) Filtration process (d) None of these
- (xvi) When heat flows through metal plate such transfer of energy is called as:
 (a) Radiation (b) Conduction
 (c) Convection (d) Rotary cutter mill
- (xvii) Venturi meter is referred as:
 (a) Variable head meter (b) Variable area meter
 (c) variable height meter (d) All of the above
- (xviii) Positive deviation from Raoult's Law is shown by:
 (a) Chloroform and acetone (b) Carbon tetrachloride and Cyclohexane
 (c) Water and nitric acid (d) None of the above
- (xix) Hammer mill is not used for:
 (a) Waxes (b) Iodine
 (c) Ginger (d) All of the above
- (xx) Baffled distillation is used to prevent:
 (a) Pyrogen (b) Particle
 (c) Both a and b (d) None of the above

Section-B

10x2=20

(Long answer type questions: Answer any two questions out of the following three questions).

- Q.2 Describe the principle, construction and working of a tray dryer, using diagram, and discuss its applications. 10
- Q.3 Describe the principle, construction and working of an orifice meter, using a diagram, and give its advantages over venturimeter. 10
- Q.4 Describe the principle, construction and working of a filter leaf, using diagrams, and give its applications. 10

Section-C

5x7=35

(Short answer type questions: Answer any seven questions, out of the following nine questions).

- Q.5 Describe the principle, working and application of Hammer mill. 5
- Q.6 Describe the principle, working and application of a cyclone separator. 5
- Q.7 Describe the principle, working and application of a planetary mixer. 5
- Q.8 Derive Bernoulli's theorem and write its applications. 5
- Q.9 Describe the principle, working and application of a tubular bowl centrifuge. 5
- Q.10 Describe the principle, working and application of a climbing film evaporator. 5
- Q.11 Describe the principle, working and application of distillation under flash distillation. 5
- Q.12 Describe the principle, working and application of a belt conveyor. 5
- Q.13 Describe the various factors affecting selection of materials for pharmaceutical plant construction. 5

Pharmacy 5th Semester-2022
Medicinal Chemistry-II

Time: Three Hours

M. Marks: 75

Note: It is compulsory to attempt Question No 1. Attempt the questions as per the instructions.

SECTION-A

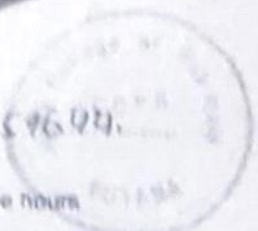
1x20=20

Q.1 Multiple Choice Questions: Answer all questions.

- Promethazine belongs to:
 - Ethylene diamine
 - Second generation antihistamines
 - Phenothiazine derivatives
 - Piprazine derivatives
- Mechanism of action of nitrate is:
 - Stimulate Guanylate Cyclase
 - Beta Blocker
 - Calcium Channel Blocker
 - Inhibit Phosphodiesterase
- The second generation Dihydropyridine drugs are:
 - Amlodipine
 - Nicardipine
 - Isradipine
 - All of the above
- In the SAR of nitrogen mustard halogen other than Cl:
 - Decrease the activity
 - Increase the activity
 - Both a and b
 - None of these
- Verapamil belongs to:
 - 1,4-dihydropyridine
 - Benzothiazepine
 - Phenylalkylamine
 - None of these
- Potassium sparing diuretics inhibits the:
 - Sodium reabsorption
 - Potassium reabsorption
 - Chloride reabsorption
 - Calcium reabsorption
- One of the following is prodrug of Enalaprilate:
 - Isinopril
 - Captopril
 - Enalapril
 - All of the above
- Propafenone belongs to:
 - Class Ia
 - Class Ib
 - Class Ic
 - None of the above
- Which of the following have sulphonamide moiety?
 - Sotalol
 - Quinidine sulphate
 - Phenytoin
 - lidocaine
- Drug having lactone ring is:
 - Lovastatin
 - Fluvastatin
 - Simvastatin
 - All of above
- Which steroid is responsible for increase Na⁺ uptake:
 - Aldosterone
 - Testosterone
 - Estradiol
 - None of the above
- Vitamin K antagonist is:
 - Warfarin
 - Acetyl Salicylic acid
 - Menadione
 - All of above
- Which of the following drug is a peptide?
 - Digoxin
 - Digitoxin
 - Nesiritide
 - None of above
- If carbon 19 is replaced by H-atom in Androsterone, will be represented as:
 - 19 H androsterone
 - Estrane
 - Nor-androsterone
 - Nothing will be changed

PTO for the remaining questions.

Roll No. 859694



**B. Pharmacy 5th Semester-2022
Pharmaceutical Jurisprudence**

May, 2022/50517

Time: Three hours

M. Marks: 75

Note:

1. It is compulsory to attempt all questions of SECTION-A.
2. Answer all parts of a question/section at one place only.
3. Draw neat and well-labelled diagrams wherever necessary.

SECTION-A

- Q.1 (a) Who maintains the Central Register of Pharmacists? 2x10=20
(b) The GMPs for Ayurvedic Medicine are covered under which schedule.
(c) Under which Act a license is required to use Indian hemp.
(d) Define a 'Controlled substance' under the Narcotics Act.
(e) What is the main function of the DPCO?
(f) What is the objective of the RTI Act?
(g) Under which Act the Excise Duties are levied on the products containing ethanol.
(h) What is covered under the 'Schedule J' of the Drugs and Cosmetics Act?
(i) In which year the 'Prevention of Cruelty to Animals Act' was passed?
(j) In India, for how many years a patent is granted for pharmaceutical products.

SECTION-B

Long answer type questions. Answer any two questions of the following three questions. 10x2=20

- Q.2 Discuss the process for obtaining a License for the manufacture of medicinal and toilet preparations.
Q.3 Write the constitution and functions of State Pharmacy Councils and the Joint Pharmacy Council.
Q.4 Discuss the various provisions for the Import of drugs according to Drugs & Cosmetics Act.

SECTION-C

Short answer type questions. Answer any seven questions out of the following nine questions. 5x7=35

- Q.5 Discuss the meaning and scope of the term "Intellectual Property Rights".
Q.6 What is the procedure for seeking any information under the provisions of the RTI Act?
Q.7 Write a note on the Termination of Pregnancy by a Registered Medical Practitioner.
Q.8 Briefly explain the meaning of 'The Code of Pharmaceutical Ethics'.
Q.9 Write the method for calculation of the Maximum Retail Price of a pharmaceutical product, based on the provisions given in the 'Drugs Price Control Order'.
Q.10 Write a note on the Breeding and Stocking of animals for the scientific experimentation.
Q.11 What are the objectives of the 'Drugs and Magic Remedies Act'?
Q.12 Briefly explain the meaning of 'illicit traffic' according to the provisions of the 'Narcotic Drugs and Psychotropic Substances Act'.
Q.13 What are the duties of a Government Analyst?

Roll No. 059044



May, 2022/50317

**B. Pharmacy 5th Semester-2022
Pharmacology- II**

Time: Three hours

M. Marks: 75

- Note: 1. It is compulsory to attempt all questions of **SECTION-A**.
2. Answer all parts of a question/section at one place only.
3. Draw neat and well-labelled diagrams wherever necessary.

Important: 4. Use only blue/black ink pen for attempting answers. Use of pencil is prohibited.

SECTION-A

Q 1 Answer the following in brief:

2x10=20

- (a) Give mode of action of phenytoin.
- (b) Write uses of nifedipine.
- (c) Define steroidal anti-inflammatory drugs.
- (d) Name two diuretics.
- (e) Explain clinical applications of anti-platelet drugs.
- (f) Write names of two 5-HT antagonists.
- (g) Give mode of action of female contraceptives.
- (h) Enlist hormones of thyroid gland.
- (i) Describe clinical applications of prostaglandins.
- (j) Define leukotrienes.

SECTION-B

Long answer type questions. Answer any two questions out of the following three questions.

10x2=20

- Q 2 Enlist various anti-arrhythmic drugs. Write mechanism of action, therapeutic uses and side effects of mexiletine. 10
- Q.3 Enumerate different types of anticoagulants. Write mode of action and clinical uses of heparin. 10
- Q.4 Classify non-steroidal anti-inflammatory agents. Discuss pharmacology of selective COX-2 inhibitors. 10

SECTION-C

Short answer type questions. Answer any seven questions out of the following nine questions.

5x7=35

- Q.5 Write a note on anti-hyperlipidemic drugs. 5
- Q.6 Discuss role of fibrinolytic. 5
- Q.7 Explain physiological role of substance P. 5
- Q.8 Write the mechanism of action and uses of captopril. 5
- Q.9 Classify anti-gout drugs. Give mechanism of action and side effects of allopurinol. 5
- Q.10 Write the pharmacological actions of beta blockers. 5
- Q.11 What is bioassay? Write bioassay histamine. 5
- Q.12 Classify antihistaminic drugs. Write clinical uses and mode of action of promethazine. 5
- Q.13 Explain role of calcitonin and vitamin D in human body. 5

14. Which of the following is/are the objectives of the RTI Act?
 (a) To enhance the strength of the Democracy
 (b) Empowering the citizen
 (c) Promotion of transparency and accountability in institutions
 (d) All of the above
15. For how many years is a Patent granted for pharmaceutical products in India?
 (a) 5 years
 (b) 10 years
 (c) 15 years
 (d) 20 years
16. For what duration are the members of the DTAB allowed to hold the office?
 (a) 2 years
 (b) 3 years
 (c) 4 years
 (d) 5 years
17. Under the Pharmacy Act the offences include:
 (a) Dispensing of medication by an unregistered person.
 (b) Falsely claiming to be a Registered Pharmacist.
 (c) Failure to provide the certificate of registration to the designated authority.
 (d) All of the above.
18. Under which of the following is Act the Excise Duties levied from the products containing Ethanol?
 (a) Pharmacy Act
 (b) Poisons Act
 (c) Medicinal and Toilet Preparations Act
 (d) Patents Act
19. The "Schedule J" of the D & C Act applies to which of the following?
 (a) Generic drugs
 (b) Anti-infective drugs
 (c) Untreatable diseases
 (d) Renal diseases
20. The "Form 32 A" under the Drugs and Cosmetics Act is used for:
 (a) Export of drugs
 (b) Loan License to manufacture cosmetics
 (c) License for re-packaging of drugs.
 (d) Import of drugs for personal use.

Section - B

Long Answer Questions: Answer any two out of the following three questions:

10x2=20

- Q2 Discuss the various provisions for the Import of drugs as per the Drugs & Cosmetics Act
- Q3 Briefly explain the constitution and functions of the State Pharmacy Councils as well as the Joint Pharmacy Council.
- Q4 Explain the process for obtaining a License for the manufacture of medicinal and toilet preparations.

Section- C

Short Answer Questions: Answer any seven out of the following nine questions:

5x7=35

- Q5 What are the duties of a Government Analyst?
- Q6 Briefly explain the meaning of "illicit traffic" according to the provisions of the Narcotic Drugs and Psychotropic Substances Act.
- Q7 What are the objectives of the Drugs and Magic Remedies Act?
- Q8 Write a note on the Breeding and Stocking of animals for the scientific experimentation.
- Q9 Explain the method for calculation of the Maximum Retail Price of a pharmaceutical product, based on the provisions given in the Drugs Price Control Order.
- Q10 Briefly explain the meaning of "Code of Pharmaceutical Ethics".
- Q11 Write a note on the Termination of Pregnancy by a Registered Medical Practitioner.
- Q12 Explain the procedure for making a request for seeking some information under the provisions of the RTI Act.
- Q13 Briefly explain the meaning and scope of the term "Intellectual Property Right".



- Note:**
1. It is compulsory to attempt all questions of SECTION-A.
 2. Answer all parts of a question/section at one place only.
 3. Draw neat and well-labelled diagrams wherever necessary.
- Important:**
4. Use only blue/black ink pen for attempting answers. Use of pencil is prohibited.

SECTION-A

1x20=20

Q.1 Answer the following in brief.

- (a) What is partition coefficient?
- (b) Mention the importance of particle size in dosage form design.
- (c) Give four examples of directly compressible diluents for tablets.
- (d) Give two examples each of emulsifying and suspending agents.
- (e) Mention the steps involved in finishing of hard gelatine capsules.
- (f) What is base adsorption and its importance?
- (g) What is meant by positive pressure with respect to aseptic room?
- (h) What information is obtained from 'water attack test'?
- (i) What are sunscreens? Mention two examples.
- (j) What are metered dose aerosols? Mention their advantages.
- (k) What is the disintegration time of enteric coated tablets?
- (l) Define elixirs and their purpose.
- (m) Which type of emulsion is cold and vanishing cream?
- (n) Give two examples of preservatives used in eye drops.
- (o) Mention the main advantages of blister packing.
- (p) Give two examples of propellants used in aerosols.
- (q) Define isotonicity and mention its importance.
- (r) Mention the disintegration time of soft and hard gelatine capsules.
- (s) Give examples of enteric coating polymers.
- (t) Give examples of anti-oxidants used in oily injections.

SECTION-B

Long answer type questions. Answer any two questions out of the following three questions.

10x2=20

- Q.2 Draw a cross section view of an aerosol system and label various parts. Explain the importance of each part. 10
- Q.3 Discuss the quality control tests to be conducted on IV infusions. 10
- Q.4 Discuss the process of film coating of tablets. Enlist common tablet coating defects and their remedies. 10

SECTION-C

Short answer type questions. Answer any seven questions out of the following nine questions.

5x7=35

- Q.5 Write a note on evaluation of flow properties of granules. 5
- Q.6 Discuss BCS with examples. 5
- Q.7 Describe compression coating process and its advantages. 5
- Q.8 Mention the reasons and remedies for weight variation and soft tablets. 5
- Q.9 Enumerate the tests conducted for evaluating liquid orals. 5
- Q.10 Explain the production process of soft gelatine capsules. 5
- Q.11 Write a note on factors to be considered while formulating eye ointments. 5
- Q.12 Discuss the preparation of shampoo. 5
- Q.13 Comment on LDPE and HDPE used for packaging pharmaceuticals. 5

- (xiv) Annatoand crocus can be classified as:
 - (a) Monoterpenoids
 - (b) Diterpenoids
 - (c) Triterpenoids
 - (d) Tetraaterpenoids
- (xv) Anethum graveolens is a biological source of:
 - (a) Fennel
 - (b) Dill
 - (c) Clove
 - (d) Cumin
- (xvi) Caffeine + tannic acid result in:
 - (a) Red ppt
 - (b) White ppt
 - (c) Black ppt
 - (d) Yellow ppt
- (xvii) In case of eugenia caryophyllus which part of the plant used as medicine:
 - (a) Flower bud
 - (b) Seed
 - (c) Fruits
 - (d) Root
- (xviii) Coriander fruits contain vitamin:
 - (a) Vitamin A
 - (b) Vitamin C
 - (c) Vitamin D
 - (d) Vitamin E
- (xix) Artemisia is used as:
 - (a) Antimalarial
 - (b) Antidiabetic
 - (c) Analgesic
 - (d) CNS stimulant
- (xx) Which methods of isolation used for perfume manufacturing
 - (a) Eculle
 - (b) Enflurege
 - (c) Both a and b
 - (d) None of the above

SECTION-B

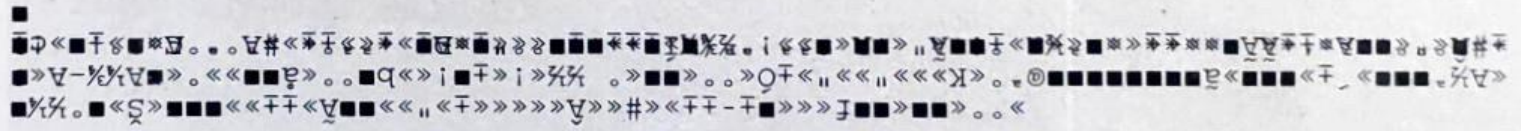
Long answer type questions. Answer any two questions out of the following three questions. 10x2=20

- Q.2 Write the difference between primary and secondary metabolites with examples. 10
- Q.3 Describe the extraction method, chemical tests and therapeutic uses of rauwolfia and senna leaves. 10
- Q.4 Define chromatography and write the application of chromatography in phytochemistry. 10

SECTION-C

Short answer type questions. Answer any seven questions out of the following nine questions. 5x7=35

- Q.5 Explain the shikimic acid pathway. 5
- Q.6 Describe the radioactive isotopes in the investigation of biogenetic. 5
- Q.7 Write the classification, chemical tests and uses of alkaloids. 5
- Q.8 Define crude drugs and write the general method for isolation of crude drugs. 5
- Q.9 Write the chemistry and extraction method of fennel. 5
- Q.10 Define glycosides and write the chemistry, analysis method and uses of almond. 5
- Q.11 Describe the applications of spectroscopy for the identification of crude drugs. 5
- Q.12 Describe the method for Industrial production of vincristin. 5
- Q.13 Write the composition, chemistry and uses of asafoetida. 5



Hullkaylik

Roll No

Oct, 2022/60417

B. Pharmacy 6th Semester-2022
Biopharmaceutics and Pharmacokinetics

Time: Three hours

M. Marks: 75

- Note: 1. It is compulsory to attempt all questions of Section-A.
2. Attempt any two questions from Section-B,
3. Attempt any seven questions from Section-C.



Important: 4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.

Section-A

- Q 1 (a) Define noyes and whiney equation
(b) Explain objectives of bioavailability.
(c) Explain clinical significance of protein binding
(d) Explain bioequivalence and therapeutic equivalence.
(e) What is the influence of GI pH on drug absorption?
(f) Define clearance. Give the expression relating clearance to half-life.
(g) What do you mean by central and peripheral compartment in two compartment modelling?
(h) Define AUC and C_{max} .
(i) What factors affect half-life of the drugs?
(j) Define intravenous infusion.

2x10=20

Section-B

(Long answer type questions: Answer any two questions out of the following three questions).

10x2=20

- Q 2 Explain in vitro-in vivo correlation briefly. 10
Q 3 What are the factors affecting protein-drug binding? 10
Q 4 Explain determination of pharmacokinetic parameters from plasma concentration data after administration of drug I.V. bolus. 10

Section-C

(Short answer type questions: Answer any seven questions, out of the following nine questions).

5x7=35

- Q 5 Write merits of non-compartmental analysis. Explain AUC and AUMC plot. 5
Q 6 Derive equation for intravenous bolus administration for one compartment open model. 5
Q 7 Write a note on latin square cross-over design for the determination of bioequivalence. 5
Q 8 What are the non-renal routes of drug excretion of drugs? 5
Q 9 Explain Michaelis-Menten method of estimating parameters. 5
Q 10 Explain different physiological barriers to distribution of drugs. 5
Q 11 Enlist in vitro dissolution models. Explain USP type 1 apparatus. 5
Q 12 Enlist different methods to enhance the bioavailability of poorly soluble drugs. Explain any four. 5
Q 13 Write the various assumptions of one compartment models. 5

900633

Hrutik Kaushik

Oct. 2022/00617

B. Pharmacy 6th Semester-2022
Quality Assurance

Three hours

M. Marks: 75



- Note:
1. It is compulsory to attempt all questions of Section-A.
 2. Attempt any two questions from Section-B.
 3. Attempt any seven questions from Section-C.

Important: 4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.

SECTION-A

Q 1 Answer all of the following questions:

2x10=20

- (a) GMP
- (b) QSEM
- (c) Sterile area
- (d) Training
- (e) Secondary packaging
- (f) Master formula record
- (g) Quality audit
- (h) Revalidation
- (i) Validation master plan
- (j) Precision and accuracy

SECTION-B

Long answer type questions. Answer any two questions out of the following three questions.

10x2=20

- Q.2 What do you understand by GLP? Explain briefly the general provision, organisation, personnel and testing facilities. 10
- Q.3 Describe the types and phases of quality audit in detail. 10
- Q.4 What do you understand by ICH? Discuss the purpose and process of harmonization. 10

SECTION-C

Short answer type questions. Answer any seven questions out of the following nine questions.

5x7=35

- Q.5 Discuss briefly the types and evaluation of complaints. 5
- Q.6 Give an exhaustive note on distribution records. 5
- Q.7 Explain the calibration of a pH meter. 5
- Q.8 Describe the various types of validation with suitable example. 5
- Q.9 Write note on protocol for conduct of a non-clinical laboratory study. 5
- Q.10 Give an overview of Q-series guidelines of ICH. 5
- Q.11 Discuss briefly the elements of Qbd program. 5
- Q.12 Explain the quality control tests for containers. 5
- Q.13 Write note on sanitation and environmental control. 5

Roll No. 900638

J. Malik Kaushik

Oct., 2022/00217

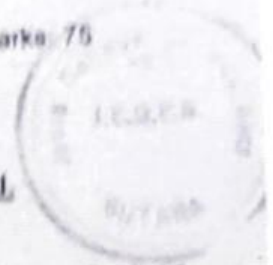
B. Pharmacy 6th Semester-2022
Pharmacology-III

Time: Three hours

M. Marks: 75

- Note:
1. It is compulsory to attempt all questions of Section-A.
 2. Attempt any two questions from Section-B.
 3. Attempt any seven questions from Section-C.

Important: 4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.



Section-A

2x10=20

- Q.1 Attempt all the following questions.
- (a) Define chemotherapy.
 - (b) Give names of two nasal decongestants.
 - (c) Highlight uses of emetics.
 - (d) What are appetite stimulants?
 - (e) Mention names of two immunosuppressants.
 - (f) Write long term effects of teratogenicity.
 - (g) Give names of antimalarial drugs.
 - (h) What is biological clock?
 - (i) Write side effects of streptomycin.
 - (j) Define expectorants.

Section-B

10x2=20

(Long answer type questions: Answer any two questions out of the following three questions).

- Q.2 Enumerate penicillin. Describe mode of action, therapeutic uses and side effect of amoxicillin. 10
- Q.3 Classify anti-asthmatic drugs. Write mechanism of action, side effects, contraindications and clinical uses of salbutamol. 10
- Q.4 Enlist antiviral agents. Write pharmacotherapy of viral infections. 10

Section-C

5x7=35

(Short answer type questions: Answer any seven out of the following nine questions).

- Q.5 Write an account of co-trimoxazole. 5
- Q.6 Explain treatment of barbiturate poisoning. 5
- Q.7 What do you mean by chronotherapy? 5
- Q.8 Discuss subacute and chronic toxicity studies with examples. 5
- Q.9 Describe mode of action and side effect of cyclophosphamide. 5
- Q.10 Write an account of immunostimulants. 5
- Q.11 Enlist respiratory stimulants. Give clinical uses of respiratory stimulants. 5
- Q.12 Explain drug treatment of STD. 5
- Q.13 Write note on the following: 2 1/2 x 2 = 5
- (a) Genotoxicity
 - (b) Carminatives.

Barcode and scanning artifacts at the bottom of the page.

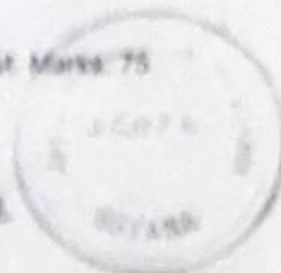
**B. Pharmacy 6th Semester 2022
Medicinal Chemistry-II**

Time: Three Hours

M. Marks: 75

- NOTE: 1. It is compulsory to attempt all questions of Section-A.
2. Attempt any two questions from Section-B.
3. Attempt any seven questions from Section-C.

Important: 4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.



Section-A

- Q.1. (a) What are nonfluorinated? Give the examples along with spectrum of activity.
(b) Give the nomenclature of basic cephalosporins.
(c) What is streptomycin? Classify its spectrum of activity and chemical components.
(d) Give the chemical name for paracetamol.
(e) Give the basic skeleton of tetraacyclins along with numbering system.
(f) Specify the application of prodrug approach.
(g) Enlist the antibiotics used in the treatment of fungal infection. Mention their mechanism of action.
(h) What is nifedipine? Give its chemical name.
(i) What are sulphonas? Give its example along with activity.
(j) What is Taft's steric parameters? Mention its importance.

2x10=20

Section-B

(Long answer type questions. Answer any two questions out of the following three questions)

10x2=20

- Q.2. Discuss the various approaches used in drug design. Explain the Hansch's analysis and its importance advantages. 10
- Q.3. Give the historical background of antimalarial drugs. Give the SAR of quinolines. Illustrate the synthesis of chloroquine. 10
- Q.4. Write short note on the following: 10
(a) Antitubercular drugs.
(b) Solid phase synthesis.

Section-C

(Short answer type questions. Answer any seven questions, out of the following nine questions)

5x7=35

- Q.5. What are anthelmintics? Classify them with examples. Give the synthesis of DEC. 5
- Q.6. Classify antiprotozoal drugs with examples. Illustrate the synthesis of metronidazole. 5
- Q.7. What is urinary tract anti-infection drugs? Enlist the quinolones of various generations. Give the synthesis of ciprofloxacin. 5
- Q.8. What are antiviral drugs? Classify them with examples. Give the synthesis of acyclovir. 5
- Q.9. Classify antifungal drugs with examples. Illustrate the synthesis of miconazole and tolnaftate. 5
- Q.10. What are quinolones? Discuss the SAR. Illustrate the synthesis of ciprofloxacin. 5
- Q.11. What are steric parameters, used in QSAR analysis? Mention its importance. 5
- Q.12. What is Hammett electronic parameters? Mention its importance. 5
- Q.13. Discuss various approaches of drug discovery with examples. 5

Hudiy Kaushik

900621

Roll No

Oct. 2022/60517

B. Pharmacy 6th Semester-2022
Pharmaceutical Biotechnology

Time: Three hours

M. Marks: 75



2x10=20

- Note: 1. It is compulsory to attempt all questions of Section-A.
 2. Attempt any two questions from Section-B.
 3. Attempt any seven questions from Section-C.

Important: 4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.

Section-A

Q 1 Answer all of the following questions.

- (a) Enlist the various method of enzyme immobilization
- (b) Enlist the types of biosensors.
- (c) Explain the applications of gel electrophoresis.
- (d) Explain the application of r-DNA technology.
- (e) What are monoclonal antibodies?
- (f) What is hybridoma technology?
- (g) Enlist the various blood components.
- (h) Enlist the types of ELISA.
- (i) What is substitution type of mutation?
- (j) What is agitation in fermentation technology?

Section-B

(Long answer type questions: Answer any two questions out of the following three questions).

10x2=20

- Q 2 Discuss the various applications of r-DNA technology in detail. 10
- Q 3 Explain the general method of preparation of bacterial and viral vaccines. 10
- Q 4 Explain about fermentation methods and general requirements in fermentation technology. 10

Section-C

(Short answer type questions: Answer any seven questions, out of the following nine questions).

5x7=35

- Q 5 Explain the source of enzymes. 5
- Q 6 Explain the working and principle of biosensor. 5
- Q 7 What do you mean by PCR? Explain in detail. 5
- Q 8 Explain flow cytometry technique of protein engineering. 5
- Q 9 Explain the steps involved in the production of citric acid. 5
- Q 10 Describe the storage condition and stability of official vaccines. 5
- Q 11 Describe the various types of mutation. 5
- Q 12 Explain plasma substitutes in detail. 5
- Q 13 Explain the processing and storage condition of whole blood. 5



Roll No. 266566

Feb, 2022/70117

**B. Pharmacy 7th Semester-2022
Instrumental Methods of Analysis**

Time: Three hours

M. Marks: 75

Note:

1. It is compulsory to attempt all question of Section-A.
2. Attempt any two questions from Section-B.
3. Attempt any seven questions from Section-C.
4. Answer all parts of a question/section at one place only.
5. Use only blue/black ink pen for attempting answers. Use of pencil is prohibited.

Section -A

- Q 1 (a) Differentiate between fingerprint and functional group region. 2x10=20
- (b) State Hook's Law.
- (c) Write the differences between Isocratic and gradient elution.
- (d) What is utility of Photo Diode Array Detector in HPLC?
- (e) Write the difference between FID and TCD in Gas Chromatography.
- (f) What is attenuated total reflectance?
- (g) Differentiate between singlet and triplet electronic state?
- (h) State equation of Beer-Lambert's Law.
- (i) What is the utility of flame photometry?
- (j) State principle of turbidimetry.

Section -B

Long answer type questions. Answer any two questions out of the following three questions. 10x2=20

- Q 2 Discuss molecular transitions in UV-visible spectroscopy by citing suitable examples.
- Q 3 Discuss principle, instrumentation and applications of gas spectroscopy.
- Q 4 Explain paper, gel and capillary electrophoresis.

Section- C

Short answer type questions. Answer any seven questions out of the following nine questions. 5x7=35

- Q 5 Explain various spectral shifts in UV visible spectroscopy.
- Q 6 Discuss ion exchange resins by giving suitable examples.
- Q 7 Discuss derivatization in gas chromatography.
- Q 8 What are various detectors used in HPLC.
- Q 9 Explain the sample preparation techniques for IR analysis.
- Q 10 Discuss principle and applications of fluorimetry and absorption spectroscopy.
- Q 11 Explain principle and applications of atomic absorption spectroscopy.
- Q 12 Compare principle and applications of thin layer and paper chromatography.
- Q 13 Discuss Mull and Pressed Pellet Technique of sample preparation in IR spectroscopy.



Roll No. 2005544

Feb, 2022/70217

**B. Pharmacy 7th Semester-2022
Industrial Pharmacy**

Time: Three hours

M. Marks: 75

Note:

1. It is compulsory to attempt all questions of **SECTION-A**.
2. Answer all parts of a question/section at one place only.
3. Draw neat and well-labelled diagrams wherever necessary.

SECTION -A

Q 1 **Answer the following in brief:**

2x10=20

- ✓(a) What are the functions of NRDC?
- ✓(b) What are the MoUs?
- ✓(c) Write the names of various agencies involved in transfer of Technology.
- ✓(d) Define the BE studies.
- ✓(e) What is the role of Small Industries Development Bank of India?
- ✓(f) What is the meaning of Out of specifications?
- ✓(g) Briefly explain the Clinical Research Protocol.
- ✓(h) Define pilot plant scale-up.
- ✓(i) What is the six sigma concept?
- ✓(j) What is the role of NABL under the Quality Council of India?

SECTION -B

Short answer type questions. Answer any seven questions out of the following nine questions.

5x7=35

- ✓Q.2 Discuss historic overview of regulatory affairs.
- ✓Q.3 What are the WHO guidelines for technology transfer?
- ✓Q.4 Discuss the documentation required for equipment qualification and validation.
- ✓Q.5 What are the regulatory requirements for non-clinical drug development?
- Q.6 Briefly explain the role of biostatistics in pharmaceutical product development.
- ✓Q.7 Discuss the organization and responsibilities of CDSCO.
- ✓Q.8 What is the ISO 9000 series of quality systems?
- ✓Q.9 What are the responsibilities of the State Licensing Authority?
- Q.10 Discuss general considerations for an IND application.

SECTION- C

Long answer type questions. Answer any two questions out of the following three questions.

10x2=20

- ✓Q.11 Discuss the regulatory requirements and approval procedure for New Drugs.
- ✓Q.12 Discuss the concepts of Total Quality Management and Quality by Design.
- Q.13 Define platform technology. Briefly explain the SUPAC guidelines.

Roll No.

B. Pharmacy 7th Semester-2022
Pharmacy Practice

March, 2022/70317

Time: Three hour

M. Marks: 75

Note:

1. It is compulsory to attempt all question of Section-A.
2. Attempt any two questions from Section-B.
3. Attempt any seven questions from Section-C.
4. Answer all parts of a question/section at one place only.
5. Use only blue/black ink pen for attempting answers. Use of pencil is prohibited.

Section -A

2x10=20

- Q.1
- (a) What are primary hospitals?
 - (b) Define pharmacokinetic drug interactions.
 - (c) What is an adverse drug reaction?
 - (d) Define hospital formulary.
 - (e) Define therapeutic drug monitoring.
 - (f) What is drug information services?
 - (g) What are internal and external training programs?
 - (h) Define idiosyncrasy and teratogenicity.
 - (i) What is patient counselling?
 - (j) Write down the responsibility of hospital pharmacists.

Section -B

Long answer type questions. Answer any two questions out of the following three questions. 10x2=20

- Q.2 Write about organization and functions of a hospital pharmacy in detail.
- Q.3 Write a note on pharmacy and therapeutic committee in detail.
- Q.4 Write an exhaustive note on drug store management and inventory control.

Section -C

Short answer type questions. Answer any seven questions out of the following nine questions. 5x7=35

- Q.5 Write in detail about types of drug interactions.
- Q.6 Comment on the role of pharmacist in medication adherence.
- Q.7 Explain rational use of OTC medications in detail.
- Q.8 What do you mean by prescribed medication order? Discuss its interpretation and legal requirements.
- Q.9 Write a short note on interpretation of clinical laboratory tests.
- Q.10 Give detailed information of investigational use of drugs.
- Q.11 Discuss the services involved in nursing homes and role of pharmacist in community health education.
- Q.12 Write about patient counselling and special cases that require the pharmacist.
- Q.13 What are the key components of community pharmacy management? Discuss their significance.

March, 2022/70417

B. Pharmacy 7th Semester-2022
Novel Drug Delivery System

M. Marks: 75

Time: 3 HOURS

1. It is compulsory to attempt all questions of SECTION-A.
2. Answer all parts of a question/section at one place only.
3. Draw neat and well-labelled diagrams wherever necessary.
4. Use only blue/black ink pen for attempting answers. Use of pencil is prohibited.

SECTION -A

2x10=20

- Q.1 (a) Write the difference between sustained release and controlled release.
(b) Define polymers.
(c) Define microcapsules.
(d) What are mucoadhesives?
(e) Enlist advantages of nasal route of drug delivery.
(f) Enlist properties of drugs for gastroretentive drug delivery.
(g) Define Liposomes.
(h) Enlist the intraocular barriers.
(i) Enlist advantages of intrauterine devices.
(j) Enlist the disadvantages of transdermal drug delivery.

SECTION-B

10x2=20

Long answer type questions. Answer any two questions out of the following three questions.

- Q.2 Discuss the principle of bioadhesion. Enlist the advantages and disadvantages of mucoadhesive drug delivery systems. Explain the formulation of buccal drug delivery systems.
- Q.3 Define Gastroretentive Drug Delivery Systems. Enlist the advantages and disadvantages of GRDDS. Explain various approaches used for gastroretention.
- Q.4 Define nanoparticles. Give their applications and advantages. Write a note on niosomes.

SECTION -C

5x7=35

Short answer type questions. Answer any seven questions out of the following nine questions.

- Q.5 Explain various approaches used in design of controlled release formulations.
- Q.6 Write a note on polymers used in CR formulations.
- Q.7 Write a note on methods of microencapsulation.
- Q.8 Discuss the formulation of dry powder inhalers.
- Q.9 Write a note on osmotic pumps.
- Q.10 What are monoclonal antibodies? Give their applications.
- Q.11 Discuss the skin factors affecting permeation.
- Q.12 Write a note on Ocular inserts.
- Q.13 Explain various components of TDDS.

Roll No.

289377

March, 2022/00917



**B. Pharmacy 8th Semester-2022
Cosmetic Science**

Time: Three hours

M. Marks: 75

- Note: 1. It is compulsory to attempt all questions of Section-A.
 2. Attempt any two questions from Section-B.
 3. Attempt any seven questions from Section-C.

Important: 4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.

Section-A

- Q.1 (a) Define humectants with example 2x10=20
 (b) What is vanishing cream and how is it made?
 (c) What do you mean by skin colour?
 (d) Describe problems associated with teeth.
 (e) Define building block of skin care products with an example.
 (f) What is nail growth cycle?
 (g) Give two examples of products for acne and dandruff.
 (h) Give details of hair conditioners.
 (i) Write about functions of skin.
 (j) What are different types of skin?

Section-B

(Long answer type questions: Answer any two questions out of the following three questions). 10x2=20

- Q.2 Write short note on the following: 5+5=10
 (a) SPF products and their quality control.
 (b) Problems of gums and their cosmetic products.
- Q.3 Write in detail about instability issues of emulsion and suspensions. 10
- Q.4 How are microemulsions formulated and what are their advantages? 10

Section-C

(Short answer type questions: Answer any seven questions, out of the following nine questions). 5x7=35

- Q.5 Give basic structure of teeth with the help of a diagram. 5
- Q.6 Write about different rheology modifiers. 5
- Q.7 What are natural surfactants? Give their examples. 5
- Q.8 Describe different skincare products. 5
- Q.9 How are hair conditioners formulated. How can their efficacy be evaluated? 5
- Q.10 What is the role of amla and henna in hair care? 5
- Q.11 Write about analytical methods for shampoos. 5
- Q.12 Discuss the advantages and disadvantages of teeth whitening products. 5
- Q.13 Discuss the terms comedogenic and dermatitis. 5

B. Pharmacy 8th Semester-2022
Quality Control and Standardization of Herbals

Time: Three hours

M. Marks: 75

Note: 1. It is compulsory to attempt all questions of Section-A.

2. Attempt any two questions from Section-B.

3. Attempt any seven questions from Section-C.

Important: 4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.

SECTION-A

2x10=20

Q.1 Answer all of the following questions:

- Enumerate the types of stomata.
- What is lycopodium spore method?
- Enumerate the phases of clinical trials with their objectives.
- What is drug product?
- What do you mean by herbal preparation?
- Enumerate the different chromatographic techniques.
- What is biological assay?
- What are chemical markers?
- Write about the methods to determine the pesticidal residue in traditional formulation.
- What are the basic parameters in the monograph of British Herbal Pharmacopoeia?

SECTION-B

(Long answer type questions: Answer any two questions out of the following three questions).

- | | |
|--|----|
| Q.2 Write a detailed note on GLP in the traditional system of medicine. | 10 |
| Q.3 Explain in detail about the ICH guidelines for herbal drugs. | 10 |
| Q.4 Explain in detail about the ICH quality control guidelines for herbal drugs. | 10 |

SECTION-C

(Short answer type questions: Answer any seven questions, out of the following nine questions).

- | | |
|---|---|
| Q.5 Write in detail about the microscopic evaluation of crude drugs. | 5 |
| Q.6 Explain the test procedure for any three medicinal plant materials. | 5 |
| Q.7 Explain the WHO guidelines on current good manufacturing practices (cGMP) for herbal medicines. | 5 |
| Q.8 Write a note on stability testing of new drug substance and products. | 5 |
| Q.9 Explain the photo stability test of new substances and medicinal products. | 5 |
| Q.10 Give the applications of various chromatographic techniques in standardization of herbal products. | 5 |
| Q.11 Explain the role of biological markers in standardization of herbal drugs. | 5 |
| Q.12 Give a detailed note on about herbal medicine required for export registration. | 5 |
| Q.13 Give the comparative features of ayurvedic and Indian pharmacopoeia. | 5 |

B. Pharmacy 8th Semester-2022
Biostatistics and Research Methodology

M. Marks 75

Time: Three hours

- Notes:**
1. It is compulsory to attempt all questions of Section-A.
 2. Attempt any two questions from Section-B.
 3. Attempt any seven questions from Section-C.
 4. Use only blue/black ink pen for attempting answers. Use of pencil is prohibited.

Section-A

2x10=20

- Q.1 Discuss briefly about the following:
- (a) Skewed distribution
 - (b) Mean
 - (c) Dispersion
 - (d) Systematic sampling
 - (e) Dependent variable
 - (f) Orthogonality
 - (g) Blocking
 - (h) Cross-sectional study
 - (i) Histogram
 - (j) Sample size

Section-B

(Long answer type questions: Answer any two questions out of the following three questions).

- Q.2 What do you understand by binomial and poisson's distribution? Explain the properties of binomial and normal distribution. 10
- Q.3 What is the main purpose of research? Discuss the need and significance of research. 10
- Q.4 Enlist various optimisation techniques. Discuss the response surface methodology with special emphasis on central composite design. 10

Section-C

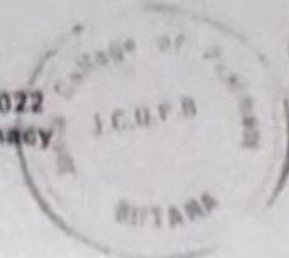
(Short answer type questions: Answer any seven out of the following nine questions).

- Q.5 Describe the linear regression with suitable example. 5
- Q.6 Write an exhaustive note on standard deviation. 5
- Q.7 Discuss the simple t-test and paired t-test with suitable example. 5
- Q.8 Discuss the types of correlation using scatter diagram(s). 5
- Q.9 How would you present the data using pie chart? Explain briefly with suitable example. 5
- Q.10 Explain briefly the type II errors with relevant examples. 5
- Q.11 What are various phases of clinical trials? How would you design a clinical trial? 5
- Q.12 Describe the Wilcoxon rank sum test with suitable example. 5
- Q.13 Write short note on the following: 2 ½ x2=5
- (a) SPSS
 - (b) Standard error of mean.

Roll No. 190217
B. Pharmacy 8th Semester-2022
Social and Preventive Pharmacy

July, 2022/80217

M. Marks: 75



Time: Three Hours

- Note: 1. It is compulsory to attempt all questions of Section-A.
2. Attempt any two questions from Section-B.
3. Attempt any seven questions from Section-C.

Important: 4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.

Section-A

2x10=20

- Q.1 (a) Define health.
(b) What are the objectives of TB program?
(c) Write symptoms of pneumonia.
(d) Write about the health awareness program in schools.
(e) What are the causes of malaria?
(f) What is marasmus?
(g) Mention any four factors which have an impact on urban health.
(h) Prevention of chicken guinea
(i) Factors of poverty on health.
(j) National urban health mission.

Section-B

(Long answer type questions: Answer any two questions out of the following three questions).

- Q.2 Explain different vitamin deficiency disorders, and their prevention. 10
Q.3 Write general principles of prevention and control of respiratory infections. 10
Q.4 Give an account on the objectives, functioning and scope of national leprosy control program. 10

Section-C

(Short answer type questions: Answer any seven questions, out of the following nine questions).

- Q.5 What is SARS? Write its symptoms and prevention. 5
Q.6 Write a note on the role of WHO in Indian National Health Programme. 5
Q.7 Explain the universal immunization program. 5
Q.8 Explain prevention and control of dengue. 5
Q.9 How the health care system is improved by improving rural sanitation. 5
Q.10 Write the causative factors, signs and symptoms of influenza. 5
Q.11 Write a note on food in relation to nutrition and health. 5
Q.12 Explain the objectives and functions of the HIV control programme. 5
Q.13 Explain about integrated disease surveillance program (IDSP). 5