[This question paper contains 2 printed pages.]

**Sr. No. of Question Paper** : 2212

**Name of the Course** : B. Pharma. – IIInd Yr. – 2013

**Name of the Paper** : XVIII  Pharmacognosy

**Duration** : 3 Hours

**Maximum Marks** : 80

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt any **five** questions.

3. **All** questions carry equal marks.

1. What do you understand by evaluation of crude drugs? Write in detail about physical evaluation.  
   (4+12)

2. Write in detail about methods of investigation of biogenetic pathways with special reference to tracer techniques.  
   (16)

3. Explain the significance of acetate hypothesis and isoprene rule in the biogenesis of secondary metabolites giving suitable examples.  
   (16)

4. Write informative notes on the followings:
   (a) Hallucinogens  
   (b) Plant allergens  
   (8+8)

5. Write the biological source, family, chemical constituents, chemical tests and uses on any two of the followings:
   (a) Acacia
2212

(b) Starch

(c) Honey

(8+8)

6. Write informative notes on any two of the followings:

(a) Spermaceti

(b) Arachis oil

(c) Mustard oil

(8+8)

7. Write short notes on the followings:

(a) Gelatin

(b) Wool fat

(8+8)

8. Write informative notes on any two of the followings:

(a) Shikmic acid Pathway

(b) Plant tissue culture

(c) Cantharides

(8+8)
Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any five questions.
3. All questions carry equal marks.

1. (a) Give the significance of non-aqueous titrations. Describe the solvents and indicators used in the non-aqueous titrations.
   (b) Write a note on diazotization titrations.                      (10+6)

2. (a) What is polarography? How it is useful in quantification? Describe Ilkovic equation.
   (b) Give details of Potentiometric titrations. Discuss various electrodes employed in it.     (8+8)

3. (a) Enlist various chromatographic techniques. Write detail of HPLC.
   (b) Describe the principle and applications of gas chromatography.                 (9+7)

4. (a) Give various types of amperometric titrations.
   (b) What is thermal analysis? Explain TGA or DTA in details.                   (6+10)
5. (a) What are conductometric titrations. Give various types of conductometric titrations.
   (b) Write a note on circular dichroism. (8+8)

6. (a) Describe the theory and instrumentation of Nephelometry and Turbidimetry.
   (b) Write a note on radio-immunoassay. (8+8)

7. Write a short note on:
   (a) Counter current extraction
   (b) Oxygen flask combustion method
   (c) Coulometric titrations (5+5+6)
1. Enumerate the characters that make benzene more stable than alkenes. "Halogens are unusual in their effect on electrophilic aromatic substitution. They are deactivating yet ortho, para directing". Explain. (6+10)

2. (a) Discuss acetoacetate ester synthesis of ketones and malonic ester synthesis of carboxylic acids.

(b) Give comparative account of nucleophilic and electrophilic addition to \( \alpha, \beta \)-unsaturated carbonyl compounds. (8+8)

3. (a) Differentiate HOMO and LUMO, conrotatory and disrotatory, symmetry-allowed and symmetry-forbidden, endo and exo, Antara and suprafacial.

(b) Describe photochemical and thermal reactions of 1,3-butadiene and 1,3,5-hexatriene. (8+8)

4. Write all steps (with mechanism) involved in the following synthesis:

(a) Tert-butyl benzene from benzene.
2209

(b) m-bromophenol from benzene

(c) Sulfanilamide from aniline

(d) Phenyl acetic acid from toluene

5. Comment on the following:

(a) Friedel – Crafts alkylation and acylation

(b) Stability of benzyl cation

(c) Hofmann rearrangement

(d) Fries rearrangement

(e) Protecting groups in organic synthesis

6. (a) Explain the following:

(i) Nucleophilic substitution occurs more readily on pyridine ring than on benzene.

(ii) Electrophilic substitution in pyrrole, furan and thiophene takes place predominantly at 2-position.

(iii) Pyrrole is less aromatic than pyridine.

(iv) Furan behaves more as diene ether than aromatic compound.

(v) Imidazole and pyrazole have higher b.p. than pyrrole.

(b) Write a note on Skraup synthesis of Quinoline.

7. (a) Give various steps for identification of a compound on the basis of spectral interpretation.

(b) Write a note on benzyne mechanism.
Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt any five questions.

3. All questions carry equal marks.

1. Define Bio-availability. Discuss the factors affecting it.

2. Write short notes on:
   - (a) Importance of enzyme inhibitors
   - (b) Pharmacodynamic drug interactions

3. Classify Antimuscarinic agents. Discuss the pharmacological actions, side effects and uses.

4. Classify Neuro-muscular blockers. Write a detailed account of their pharmacological actions.

5. Classify Antihistamines. Write a detailed note about their pharmacological actions and side effects.
6. Write short notes on:
   (a) Drugs used in Glaucoma
   (b) Salbutamol

7. Write short notes on:
   (a) Teratogenicity
   (b) Uses of Prostaglandins with pharmacological basis
[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 2208

Name of the Course : B. Pharma. – IIInd Yr. – 2013
Name of the Paper : XIV Pharmaceutics – VI (Hospital Pharmacy)
Duration : 3 Hours
Maximum Marks : 80

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any five questions.
3. All questions carry equal marks.

1. (a) Write on composition and responsibility of Pharmacy and Therapeutics Committee. (6)

(b) Write on the organization and structure of a 500 bedded hospital. (4)

(c) Give an account of hospital formulary system in a hospital. (6)

2. (a) Discuss various inventory control procedures adopted in a large pharmacy store in a Hospital. (4)

(b) Discuss the various storage conditions required for vaccines, sera, other scheduled & Controlled drugs including schedule C & C1 products, narcotics a schedule x drugs. (6)

(c) Write in detail about the purchase process adopted in a Government hospital. (6)
3. Write short notes on:—
   (a) Labeling of drugs in a hospital
   (b) Ambulatory patients
   (c) Controlled drugs
   (d) Central sterile supply unit

4. (a) Give a detailed account of sterilization by radiation.
   (b) What are the different manufacturing requirements for large volume parenterals?

5. Discuss in detail about various drug information resources.

6. Write short notes on (any four):—
   (a) Drug information centre.
   (b) Drug interaction.
   (c) Adverse drug reaction.
   (d) Master formula card.
   (e) Standard operation procedure. (S.O.P)

7. (a) Define Radio-pharmaceutics. What do you mean by radio active half life? Discuss various units of radio activity.
   (b) Write a note on:—
      (i) Isotope tagging
      (ii) Radiation Hazards & their prevention
Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any five questions.
3. All questions carry equal marks.

1. What are the general considerations for parenteral preparations? Write in detail the production of Water for injection. (6+10)

2. Elaborate the designing of an aseptic area. Discuss the laminar air flow equipment in detail. (10+6)

3. (a) Write in detail the enumeration of bacteria. (8)
   (b) Discuss cultivation of anaerobes. (8)

4. (a) What are the common classes of antiseptics? (6)
   (b) How do you evaluate them? (10)

5. (a) Explain the terms complement, interferon, bacterial resistance and humoral immunity. (8)
(b) Discuss the preparation and standardization of poliomyelitis vaccine. (8)

6. (a) Describe the sterility testing of surgical dressings as per I.P. (10)

(b) Discuss the general properties and cultivation of viruses. (6)

7. (a) Discuss the microbiological assay of vitamin B₁₂. (8)

(b) Discuss in detail the different types of microscopy used in microbiology. (8)

8. Write short notes on the following:

(a) Bacterial staining techniques

(b) LAL test

(c) Radiation Sterilization

(d) Evaluation of efficiency of sterilization (4×4)
[This question paper contains 2 printed pages.]

Sr. No. of Question Paper  : 2206
Name of the Course : B. Pharma. – II Ind. Yr. – 2013
Name of the Paper : XII  Pharmaceutics – IV (Pharmaceutical Engineering – II)
Duration  : 3 Hours
Maximum Marks : 80

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any five questions.
3. All questions carry equal marks.

1. (a) Discuss Fourier’s law of heat transfer. Derive an expression for compound resistances in series considering a flat wall constructed of a series of layers of different thicknesses.  (4+8)

   (b) Explain the analogy between flow of heat and flow of electricity.  (4)

2. Explain the following:

   (a) Overall heat-transfer coefficient
   (b) Black body
   (c) Mechanism of Freeze drying
   (d) Raoult’s Law  (4×4)

3. (a) How do you classify the equipments used for mixing?
   (b) Discuss the theory of solid-liquid mixing.
2206

(c) Discuss in detail the equipments used in mixing of liquids. (4+4+8)

4. Discuss the objectives of size reduction. Elaborate the mills based on the mechanisms of :-
   (a) Cutting
   (b) Attrition
   (c) Impact
   (d) Combined Impact and Attrition (4+12)

5. (a) Describe in detail the basic concept of phase equilibra.
   (b) Give a detailed account of multiple effect evaporators. (8+8)

6. (a) Define drying.
   (b) Discuss the mechanism of drying.
   (c) Discuss in detail the dryers used in pharmaceutical industries. (2+4+10)

7. What are simple steam and flash distillations? Discuss the McCabe and Thiele method for calculation of the number of theoretical plates. (8+8)

8. Write short notes on the following:
   (a) Different types of graphic representation
   (b) Material and energy balances
   (c) Extraction processes and solvent recovery
   (d) Sieves and their uses in grading of powder (4×4)
Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt any five questions.

3. All questions carry equal marks.

1. (a) Discuss the principle and application of refrigeration. (8)
   
   (b) What are chemical hazards? How can they be prevented? (8)

2. (a) Derive Bernoulli's equation for flow of fluids. What are its applications? (8)
   
   (b) Give construction, working and principle of piston pump. (8)

3. Write short notes on:

   (a) Industrial centrifugal filters
   
   (b) Concept of boundary layer
   
   (c) Conveyers and their applications
   
   (d) Stainless steel as material in construction of bulk plants (4×4)

4. (a) Discuss the theory of filtration. (6)
(b) Describe the functioning of industrial filters. (10)

5. (a) Describe the principles of centrifugation. (8)
(b) Give the construction, working, principle application of venturimeter. (8)

6. (a) Discuss the equipments used for dehumidification operations. (8)
(b) Define the following terms:
   (i) Adiabatic Saturation temperature
   (ii) Dew point
   (iii) Clarification
   (iv) Crystal growth (2×4)

7. (a) What is the theory and mechanism of crystallization? (8)
(b) With the help of a neat labeled diagram describe the construction, functioning and application of Swenson-Walker crystallizer. (8)

8. What are the various types of Pumps? With the help of a neat diagram, describe the working of Ejector Pump. (16)