

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Figures to the right indicate full marks.
 3. Draw the diagrams/ structures wherever necessary.

Q.1) A) Give the role of the following inorganic compounds 05
 i. Tale ii. Al (OH)₃ iii. Selenium iv. Ammonium chloride v. Sodium nitrite

B) Give the mechanism of "action" of the following 05
 i. Sodium bicarbonate ii. Magnesium sulfate as laxative
 iii. Sodium metabisulphite iv. Sodium fluoride iv. Sodium thiosulfate for cyanide poisoning

C) Match the following:- 05

A	B
Tc ^{99m}	Essential trace ions
Na ⁺	Topical agent
Apoferretin	Diagnosis of neoplastic tissues
Zn ⁺²	Carrierprotein
Colloidal Silver preparation	Major extracellular cation

Q.2) A) Draw a schematic sketch depicting the role of kidney in acid base balance 04

B) Discuss the role of oxygen and nitrous oxide 04

C) Name the following 03
 i. A sclerosing agent ii. A physiological antidote iii. A chelating agent

Q.3) A) Discuss the mechanism of fluorides in the inhibition of caries formation of dental enamel and discuss the role of stannous fluoride 04

B) Discuss the role of Co⁶⁰ and Cr⁵¹ radioisotopes 04

C) Discuss the role of copper and iron as an essential trace ions 03

Q.4) A) Define buffers. Explain buffer action using two suitable examples 04

B) Write short notes on (any two) 04
 i. Preservatives ii. Suspending agent iii. Diluent iv. Lubricants

C) Elaborate the term "Radiation Dosimetry" 03

Q.P. Code :03800

- Q.5) A) Define the term hardness of water. Give methods of softening of water. 04
OR
Define cathartics. Classify cathartics using suitable examples
- B) Discuss the advantages of combination therapy of electrolytes giving two examples. 04
OR
Write a note on combination antacid therapy
- C) Define the term "antidotes". Classify and write their mechanism of each class using suitable examples 03
- Q.6) A) Define achlorhydria and write a short note on its treatment 03
OR
Write a note on mechanism of action of antimicrobial agents
- B) Write a short note on 08
i. Treatment of metabolic alkalosis
ii. Astringents
iii. Expectorants and their mechanism
iv. Role of EDTA as chelating agent



Q.P. Code :02890

[Time: Three Hours]

[Marks:70]

Please check whether you have got the right question paper.

N.B: 1. All questions are compulsory.

- Q.1
- Draw the structure of D-xylose by Fischer projection Formula 01
 - Draw structure of D-Glucose by Haworth projection formula 01
 - draw struture of lecithin 01
 - Explain effect of P^{H} on enzyme activity 01
 - Give mechanism of HMG – CoA reductase 01
 - Explain enzyme induction & repression 01
 - Name active form of vit B₁ 02
 - Give Names & Draw structure of sulfur containing amino acidss with three letter code 02
 - What is allosteric inhibitions? 02
 - Define vitamin and classify it 02
 - Expplain metabolism with example 02
- Q.2
- Write a note on secondary structure of protien 03
 - Explain ATP as an energy carrier 03
 - Discuss competitive enzyme inhibition 03
 - Discuss in detail about carboaydrate digestion 02
- Q.3
- Write a note on glycogen 03
 - Write a note on vit-A or vit-k 03
 - Write a note on folic acid 03
 - Explain Free energy & transformed free energy 02
- Q.4
- Classify amino acids based on functional groups with example (no structure required) 03
 - Write a note on triglycerides. 03
 - Discuss biochemical role of Vit-B₇ or Vit-B₅ 02
 - State laws of thermodynamics 02
 - Give role of kindney in degertion & absorption of food. 01
- Q.5
- Give detail classification of carbohydrate 03
 - Explain effect of substrate concentration on enzyme avtivity 03
 - Explain multiple cascade system for enzyme regulation 02
 - Dscuss biochemical role of Ascorbic acid 02
 - Draw structure of arachidonic acid. 01
- Q.6
- Write a note on Vit-B₁ or Vit-B₂ 03
 - Write a note on post-translational modification 03
 - Give two examples of drugs that inhibits following enzymes with their clinical significance. 02
 - MAO
 - Thymidylate synthetase
 - Give short note on double Helix structure of DNA
 - Differential between fat & oil. 02

Q.P. Code:07570

[Time: 3 Hours]

[Marks:70]

Please check whether you have got the right question paper.

N.B:

1. All questions are **compulsory**.
2. **Figures** to the **right** indicate **full marks**.
3. **Draw neat labeled diagram wherever applicable**.

- Q.1 (a) Define drug and dosage form with example. 02
- (b) Discuss fate of drug in body in brief. 02
- (c) Calculate the quantities required to prepare 250gm of ointment containing zinc oxide :0.3% w/w and calamine 0.15% w/w. 01
- (d) Define Newtonian flow and non-Newtonian flow. 01
- (e) How are solutions prepared by chemical reaction? Explain the same with the example of Magnesium citrate oral solutions. 04
- OR
- Differentiate between syrup IP and NF. Explain any two methods to prepare syrup.
- (f) Write in brief about ORS. 02
- (g) Classify inclusion complexes with examples. 02
- (h) Enlist factors affecting dissolution. 01
- Q.2 (a) Compare oral and parenteral routes of administration. 03
- (b) Discuss Homeopathy system of medicine. 02
- (c) Explain importance of polymorphism during preformulation study of Monophasic liquid dosage form. 02
- (d) Discuss glass as a packaging material. 03
- OR
- Give an account of closure for liquids.
- (e) Enlist methods of analysis of complexes. 01
- Q.3 (a) Explain GMP with respect to personnel. 02
- (b) Give an account of Thixotropic flow. 02
- (c) Write the working of Turbine mixers. 02
- (d) Enlist methods to determine particle size and explain microscopy method for particle size determination. 04
- (e) Define diffusion and dissolution. 01

Q.P. Code:07570

- Q.4 (a) Define **any three**: 03
- i) Liniments
 - ii) Enemas
 - iii) Aromatic water
 - iv) Throat paints.
- (b) Calculate % w/w concentration of a drug solution having 15% w/v concentration and density of 1.09g/ml. 02
- (c) Discuss the stabilizers used in liquid preparations. 02
- (d) Explain principle of size separation by cyclone separator. 02
- (e) State and explain Noyes Whitney equation. 02
- Q.5 (a) Write in brief about Pharmaceutical Industry in India. 02
- (b) Explain any one method to determine Newtonian type of flow of liquid. 02
 - (c) Write in brief about leaf filter. 03
 - (d) Explain the principle of operation of Hammer mill and Ball mill. 04
- Q.6 (a) What is pharmacopoeia? Explain in brief about British pharmacopoeia. 03
- (b) What is drug efficiency and does response. 02
 - (c) Explain Quality control tests for monophasic liquid dosage forms. 04
 - (d) Discuss in brief the parameter used to assess the flow property of powders. 02

Q.P. Code :00181

[Time: Three Hours]

[Marks:70]

Please check whether you have got the right question paper.

- N.B: 1. All questions are compulsory.
2. Draw neat and labelled diagrams wherever necessary.

- Q.1. a If the pH of a solution is 4.5 calculate the hydroxyl ion concentration of the solution. 2
b Discuss in detail the factors affecting solubility of gases in liquids. 3
c Define and differentiate between order and molecularity of a reaction. 3
d Explain the relation between surface active agents and HLB. 3
e Write in brief about concentration cells 2
f Define colloids and give properties of lyophobic colloids. 2
- Q.2. a Enlist the methods to adjust tonicity and explain cryoscopic method in detail. 4
OR
Define buffer capacity and give significance of pharmaceutical buffers. 4
b State Phase Rule and describe in detail a two component system. 4
c What are pseudo-order reactions. Derive an equation for rate constant of a first order reaction. 3
- Q.3. a Define partition coefficient and discuss its applications. 4
b Explain Half-life method and graphical method to determine order of reaction. 4
OR
Explain the relation between temperature and rate of reaction. 4
c State and explain Gibbs adsorption equation and define 'surface excess'. 3
- Q.4. a Explain Bronsted – Lowry Theory of Acids and Bases and state the Henderson –Hasselbalch equation of an acidic buffer and a basic buffer. 4
b Write a note on Calomel Reference Electrode. 3
c Write a note on kinetic properties of colloids. 4
OR
Discuss the methods of preparation of colloids. 4
- Q.5. a Explain the applications of Accelerated stability studies. 3
b i) What is an adsorption isotherm and state equation for Langmuir isotherm. 2
ii) Differentiate between physical and chemical adsorption. 2
c Define 'Gold Number' and 'Schultz Hardy Rule' 4
OR
Write a note on protective colloids. 4
- Q.6. a A first order reaction is one fifth completed in 40 mins. Calculate the time required for its 90% completion. 3
b Define Interfacial tension and Explain Du Nuoy Tensiometer in detail. 4
c State Nernst equation and write a note on glass electrode. 4

Q.P. Code :01253

[Time: Three Hours]

[Marks:70]

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Figures to right indicates full marks
 3. Draw neat, labelled diagrams wherever necessary.

- Q.1a) Answer the following: (12 Marks)
- i) Explain give functions of oligodendrocytes.
 - ii) Give the functions of larynx.
 - iii) Describe the functions of glucagon.
 - iv) What do you mean by mania?
 - v) Give an account a Goiter.
- b) Answer the following: (03 Marks)
- i) _____ neuroglia is responsible for myelination of PNS neurons.
 - ii) Write a note on iris.
 - iii) What is cerebral hypoxia?
- Q.2a) Answer **any two** of the following: (08 Marks)
- i) Explain the mechanism of cellular necrosis.
 - ii) Enlist the causes of cell injury and explain any one in detail.
 - iii) Explain metastasis.
- b) Answer **any one** of the following: (03 Marks)
- i) Explain the biological effects of x-rays
 - ii) What are the consequences of exposure to nuclear radiation.
- Q.3a) Answer **any two** of the following: (08 Marks)
- i) Give the classification of neurons.
 - ii) Draw a well labelled diagram of cerebrum showing functional areas.
 - iii) What are the functions of basal nuclei and cerebellum?
- b) Write a short note on (**any one**): (03 Marks)
- i) Stroke
 - ii) Depression

Turn over

Q.P. Code :01253

- Q.4a) Answer **any two** of the following: (08 Marks)
- Explain physiology of voice production.
 - Explain the structure of lungs.
 - Give a detail account of pneumonia.
- b) Answer **any one** of the following: (03 Marks)
- Explain pathophysiology of Emphysema.
 - Write a note on bronchitis
- Q.5a) Answer **any two** of the following: (08 Marks)
- Discuss the physiological role of calcitonin & parathyroid hormone.
 - Define and classify hormones.
 - Explain mechanism of hormonal action.
- b) Write a note on **any one** of the following: (03 Marks)
- Pituitary dwarfism
 - Diabetes mellitus.
- Q.6a) Attempt **any one** of the following: (04 Marks)
- Draw a well labelled diagram of human ear.
 - Give the functions of skin.
- b) Answer **any one** of the following: (04 Marks)
- Describe the major responses of the body to the stimulation by ANS.
 - Give the classification of cholinergic & adrenergic receptors.
- c) Answer **any one** of the following: (03 Marks)
- Write a note a taste adaptation.
 - Explain the working and functions of ear ossicles.