

Please check whether you have got the right question paper.

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

Q.1 Any 3 Out of 5 (5M Each)

- 1) What is LD50? How LD50 is different from ED50? Short note on sustained release formulations
- 2) What is Receptor? Explain importance of Drug-receptor interactions.
- 3) Write synthesis and use of Aceclofenac. Also list factors that decide routes of drug administration.
- 4) Describe Spurious Drugs and Misbranded Drugs in details.
- 5) Define Prodrug and Half-life efficiency. Explain Pharmacopoeia in brief.

Q.2 Any 3 Out of 5 (5M Each)

- 1) What are the Requirements of an ideal drug?
- 2) Define: Adsorbate and Adsorbent. State the cause of adsorption of gases on solid surface.
- 3) At STP, volume of oxygen gas required to form a monolayer on the sample of charcoal is $155.5 \text{ cm}^3/\text{gm}$. Calculate the surface area per gram of charcoal. Given that area of cross section of oxygen gas is $1.6 \times 10^{-20} \text{ m}^2$.
- 4) Explain in detail the strategy used during acid digestion of inorganic samples
- 5) State the postulates and give mathematical expression of BET adsorption isotherm.

Q.3 Any 3 Out of 5 (5M Each)

- 1) Write a note on lipid peroxidation?
- 2) Define BMR. Write a note on calcium metabolism.
- 3) What are antioxidants? Discuss their role in diet.
- 4) What abnormalities are caused due to deficiencies of a) Selenium and b) fluoride
- 5) Write a detailed note on atherosclerosis.

Q.4 Any 3 Out of 5 (5M Each)

- 1) Write a note on Drug development from Natural Sources.
- 2) Write a note on PEM.
- 3) In adsorption of hydrogen on powdered copper, the monolayer is formed with $1.45 \times 10 \text{ dm}^3$ of hydrogen measured at S.T.P. per gram of powder. If density of liquid hydrogen is 0.07 kg/dm^3 , calculate the specific surface area of copper.
- 4) With suitable examples, explain the terms (i) Homogenous catalysis (ii) Heterogeneous catalysis
- 5) What is respiratory quotient? How do you relate BMI and obesity?
