

B.Sc. Semester - 4 (CBCS) Examination
March/April-2024 [OLD COURSE]
BIO-CHEMISTRY (CORE)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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- Que.1(A) Answer the following. (Any one Out of Two) (07)
1. Short note on: Electromagnetic radiation and spectra.
 2. Principles and working of single beam spectrophotometer.
- Que.1(B) Attempt any one. (Out of Two) (04)
1. Advantages of double beam instruments.
 2. Applications of UV-Visible spectroscopy.
- Que.1(C) Attempt any three. (Out of Five) (03)
1. Explain: Absorption.
 2. Define: Extinction coefficients.
 3. Write limitation of Beer – Lambert's law.
 4. Wavelength of visible are _____ to _____ nm.
 5. Visible Spectrophotometer used for measurement of pure DNA. (True/False)
- Que.2(A) Answer the following. (Any one Out of Two) (07)
1. Discuss in detail: Types of centrifuges.
 2. Write short note on instrumentation and Basic principle of centrifugation.
- Que.2(B) Attempt any one. (Out of Two) (04)
1. Write any four-application centrifugation.
 2. Write the basic concepts of Relative centrifugal force.
- Que.2(C) Attempt any three. (Out of Five) (03)
1. Define: Centrifugation.
 2. Explain: Sedimentation.
 3. Write Full form of RPM.
 4. Centrifugation based on _____ law. (Stokes law / Newton's law)
 5. The centrifugation is use for separation of gas and solid particle. (True/False)
- Que.3(A) Answer the following. (Any one Out of Two) (07)
1. Various types of radioisotopes used in biochemistry.
 2. Gas ionization and liquid scintillation counting Techniques.
- Que.3(B) Attempt any one. (Out of Two) (04)
1. Hazards and safety measures in handling radioisotopes.
 2. Various applications of radioisotopes in field of biological science.

- Que.3(C) Attempt any three. (Out of Five) (03)
1. Write the units of radioactivity.
 2. Explain: Half-life of radioisotope?
 3. Write the three names of radioactive compound.
 4. Isotopes have the same number of electrons. (True/False)
 5. _____ is radioactive compound. (Uranium / Carbon)
- Que.4(A) Answer the following. (Any one Out of Two) (07)
1. Detailed note on: Gas-Liquid chromatography.
 2. Give in brief: Paper and thin-layer chromatography techniques.
- Que.4(B) Attempt any one. (Out of Two) (04)
1. Give basic information on HPLC.
 2. Write overview of Affinity chromatography.
- Que.4(C) Attempt any three. (Out of Five) (03)
1. Full form of HPLC.
 2. Define: Stationary phase.
 3. Write the any two-compound used as stationary phase.
 4. In chromatography, the Mobile phase can be solid compound only. (True/False)
 5. In Thin layer chromatography, the stationary phase is made of _____ and the mobile phase is made of _____. (Solid, liquid)
- Que.5(A) Answer the following. (Any one Out of Two) (07)
1. Write detailed note on Isoelectric focusing.
 2. Discuss in detail: Agarose Gel electrophoresis.
- Que.5(B) Attempt any one. (Out of Two) (04)
1. In which principles, electrophoresis work.
 2. Various factors are affected electrophoretic separation.
- Que.5(C) Attempt any three. (Out of Five) (03)
1. Explain: Zwitterion.
 2. Define: Electrophoresis.
 3. Full name of SDS-PAGE.
 4. Electrophoresis used for separation of protein. (True / False)
 5. DNA is contained _____ charge, and separates towards _____ charge.
(Negative, Positive)
