

B.Sc. Semester - 1 (CBCS) Examination
Feb/Mar. -2021 (OLD COURSE)
BIO-CHEMISTRY (CORE)

Time: 1:30 Hours**Marks: 42****Instructions:**

1. Figures to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any three of the following questions.

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- Q.1(A) Write the correct answer for the questions (04)
1. Give the composition of an atom.
 2. What is polar bond?
 3. Define: Electrophiles.
 4. Name the most and least electronegative atom.
- Q.1(B) Write the Answer in Brief. (Any 1 out of 2) (02)
1. Comment: Oxygen can form double bonds.
 2. Why covalent bonds are irreversible?
- Q.1(C) Write the Answer in detail. (Any 1 out of 2) (03)
1. Illustrate the type of bond in NaCl.
 2. Give the importance of hydrophobic interaction.
- Q.1(D) Write the Short note in detail. (Any 1 out of 2) (05)
1. Describe resonance bond with two-three examples.
 2. With well labelled diagram, explain the bonds involved in secondary interactions.
- Q.2(A) Write the correct answer for the questions (04)
1. What is oxidizing agent?
 2. Define exothermic reaction.
 3. State First law of thermodynamics.
 4. Giving example define Extensive properties.
- Q.2(B) Write the Answer in Brief. (Any 1 out of 2) (02)
1. Classify types of Phosphoryl compounds giving examples.
 2. State second law of Thermodynamics.
- Q.2(C) Write the Answer in detail. (Any 1 out of 2) (03)
1. Draw labelled structure of ATP.
 2. Define and give importance of Biological Standard free energy change.
- Q.2(D) Write the Short note in detail. (Any 1 out of 2) (05)
1. Why ATP has got high ΔG ?
 2. Give relationship between equilibrium constant and ΔG .
- Q.3(A) Write the correct answer for the questions (04)
1. Which pH is most acidic pH 4 or pH 8?
 2. Write the examples of biological buffer.
 3. Define: respiratory acidosis
 4. Define Arrhenius acid & base.
- Q.3(B) Write the Answer in Brief. (Any 1 out of 2) (02)
1. Calculate pH of 0.005 N HCL solutions?
 2. When base is added to dihydrogen phosphate / hydrogen phosphate buffer system, what will happen?
- Q.3(C) Write the Answer in detail. (Any 1 out of 2) (03)
1. Define pH and explain types of pH electrode.
 2. Explain conjugated acid base pair with any one example.

- Q.3(D) Write the Short note in detail. (Any 1 out of 2) (05)
1. Explain the titration curve of strong acid and strong base.
 2. Write the physical properties of acid and base and explain Bronsted acid base theory with any one example.
- Q.4(A) Write the correct answer for the questions (04)
1. Give the examples of adsorbents.
 2. Define: diffusion.
 3. What is reverse osmosis?
 4. What do you understand by fluidity?
- Q.4(B) Write the Answer in Brief. (Any 1 out of 2) (02)
1. Differentiate between Adsorption and desorption.
 2. Can glucose diffuse through the plasma membrane? Why?
- Q.4(C) Write the Answer in detail. (Any 1 out of 2) (03)
1. How hypertonic solutions of salt or sugar can prevent microbial growth and hence are used for preservation of foods like pickles and jellies.
 2. Explain: effect of temperature on viscosity.
- Q.4(D) Write the Short note in detail. (Any 1 out of 2) (05)
1. Write applications of viscometry.
 2. Write short note on importance of diffusion in living systems.
- Q.5(A) Write the correct answer for the questions (04)
1. Define stock solution.
 2. What is gram percentage solution?
 3. What do you understand by Molarity?
 4. Give a difference between molar and molal solution.
- Q.5(B) Write the Answer in Brief. (Any 1 out of 2) (02)
1. How is solution formed by mixing solute and solvent?
 2. Define normality and equivalent weight, and give its calculation formula
- Q.5(C) Write the Answer in detail. (Any 1 out of 2) (03)
1. Give characteristics of solution.
 2. Discuss properties of water as solvent.
- Q.5(D) Write the answer in detail. (Any 1 out of 2) (05)
1. How will you prepare 0.1 M 450 ml NaOH solution? Give all the calculation.
 2. What is dilution? Explain by giving two-three examples.
