

B.Sc. Semester - 2 (CBCS) Examination
July-2025 (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) Discuss structural organization of a typical bacterial cell.
(2) Give an overview of prions.
- Que.1(B)** Attempt **any one** (out of two). (04)
(1) Write a note on microtubules.
(2) Differentiate between plant cell and animal cell.
- Que.1(C)** Attempt **any three** (out of five). (03)
(1) True or false : Actin filaments are made of protein.
(2) Define : Cell
(3) True or false : Viruses can never infect bacteria.
(4) State function of myosin filaments.
(5) Name levels of organization in biology.
- Que.2(A)** Answer the following (**Any one** out of two). (07)
(1) Write on isolation of cell organelles by differential centrifugation.
(2) Discuss structure and function of mitochondria.
- Que.2(B)** Attempt **any one** (out of two). (04)
(1) Write in brief on plasma membrane.
(2) Write a note on lysosomes.
- Que.2(C)** Attempt **any three** (out of five). (03)
(1) State function of endoplasmic reticulum.
(2) What are glyoxisomes?
(3) What are marker enzymes?
(4) Based on endosymbiosis hypothesis, chloroplast is originated from.....
(5) True or false : All cells contain a cell wall.
- Que.3(A)** Answer the following (**Any one** out of two). (07)
(1) Explain Meiosis.
(2) Discuss stages of cell cycle.
- Que.3(B)** Attempt **any one** (out of two). (04)
(1) Write a note on cell differentiation.
(2) Differentiate between mitosis and meiosis.
- Que.3(C)** Attempt **any three** (out of five). (03)
(1) True or false : Prokaryotic and eukaryotic cell cycle are not exactly same.
(2) What is cytokinesis?
(3) True or false : Phase G₁ is a part of interphase.
(4) Do bacterial cells divide by binary fission ?
(5) What happens during M phase?
- Que.4(A)** Answer the following (**Any one** out of two). (07)
(1) Explain Singer and Nicholson model.
(2) Explain Sodium Potassium ATPase and its significance.
- Que.4(B)** Attempt **any one** (out of two). (04)
(1) Write a note on facilitated diffusion.
(2) Write on FRAP experiment.

- Que.4(C)** Attempt **any three** (out of five). **(03)**
- (1) What is simple diffusion?
 - (2) State application of ionophores.
 - (3) True or false : The cell membranes contain only proteins.
 - (4) What is flip-flop movement of phospholipids?
 - (5) What is active transport?
- Que.5(A)** Answer the following (**Any one** out of two). **(07)**
- (1) Explain light reaction in photosynthesis.
 - (2) Write a note on biological nitrogen fixation.
- Que.5(B)** Attempt **any one** (out of two). **(04)**
- (1) Write a note on photorespiration.
 - (2) Write a note on plant growth promoting hormones.
- Que.5(C)** Attempt **any three** (out of five). **(03)**
- (1) Write full form of RUBisCO.
 - (2) Give an example of C3 plant.
 - (3) What is the disadvantage of CAM metabolism?
 - (4) What is the importance of dark reaction?
 - (5) What is the function Absciscic acid?
