

B.Sc. Semester - 2 (CBCS) Examination
March/April – 2025 (New 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) Explain structural organization of prokaryotic cell.
 - 2) Write a note on viroids and prions.
- Que.1(B) Attempt **any one** (out of two) (04)
- 1) Distinguish between plant cell and animal cell.
 - 2) Write a note on microtubules
- Que.1(C) Attempt **any three** (out of five) (03)
- 1) True or false : Viruses always have only DNA as genetic material.
 - 2) Define : Cell
 - 3) What is the function of actin filaments?
 - 4) What are the subunits of eukaryotic ribosomes?
 - 5) True or false : Viruses are considered to be at threshold of life.
- Que.2 (A) Answer the following (**any one** out of two) (07)
- 1) Write a note on glyoxisomes and peroxisomes.
 - 2) Discuss role of differential centrifugation in cell biology.
- Que.2(B) Attempt **any one** (out of two) (04)
- 1) Write a note on mitochondria.
 - 2) Write on Golgi complex
- Que.2(C) Attempt **any three** (out of five) (03)
- 1) What are the types of endoplasmic reticulum?
 - 2) True or false : All cells possess cell wall.
 - 3) What is cytoplasm?
 - 4) is also known as “the suicide sac of the cell”.
 - 5) Name the organelle responsible for photosynthesis in plants.
- Que.3(A) Answer the following (**any one** out of two) (07)
- 1) Discuss phases of cell cycle.
 - 2) Explain mitosis.
- Que.3(B) Attempt **any one** (out of two) (04)
- 1) Write a note on cell differentiation and its importance.
 - 2) Write a note on stages of meiosis.
- Que.3(C) Attempt **any three** (out of five) (03)
- 1) What is the physiological importance of mitosis?
 - 2) How many cells are produced at the end of meiosis?
 - 3) True or false : Bacterial cells are divided by meiosis.
 - 4) What does totipotency of cell mean?
 - 5) What is the function of cell cycle check points?
- Que.4(A) Answer the following (**any one** out of two) (07)
- 1) Explain Singer-Nicholson Model for plasma membrane structure.
 - 2) Write a detailed note on Sodium Potassium ATPase.
- Que.4(B) Attempt **any one** (out of two) (04)
- 1) Write a note on FRAP experiment.
 - 2) Write on facilitated diffusion.

- Que.4(C) Attempt **any three** (out of five) (03)
- 1) What is simple diffusion?
 - 2) What are ionophores?
 - 3) True or false : Active transport requires energy.
 - 4) True or false : For proteins embedded in the membrane, flip-flop movement is very likely.
 - 5) True or false : Biological membranes are present essentially in all types of cells.
- Que.5(A) Answer the following (**any one** out of two) (07)
- 1) Explain dark reaction.
 - 2) Write on symbiotic nitrogen fixation.
- Que.5(B) Attempt **any one** (out of two) (04)
- 1) Write a note on any two plant hormones.
 - 2) Write a note on photorespiration.
- Que.5(C) Attempt **any three** (out of five) (03)
- 1) True or false: Actinomycetes can never fix nitrogen.
 - 2) Give two examples of C4 plants.
 - 3) True or false : Salicylates can act as phytohormones.
 - 4) Do cyanobacteria carry out oxygenic photosynthesis?
 - 5) State the importance of CAM.
