647510 **0301212C1010** **Seat No :_____**

B.Sc. Semester - 2 (*CBCS*) Examination
March/April - 2024 (As Per Syllabus Year-2016)
BIO-CHEMISTRY (CORE)

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

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que.1(A) Answer the following. (any one out of two) (07)

(1) Explain structural organization of a prokaryotic cell.

(2) Discuss structure and functions of actin filaments.

Que.1(B) Attempt any one. (out of two) (04)

(1) Write a note on viroids.

(2) Differentiate between an animal cell and a plant cell.

Que.1(C) Attempt any three. (out of five) (03)

(1) True or false: A virus has peptidoglycan cellwall.

(2) What are prions?

(3) Define: Cell

(4) What are intermediate filaments?

(5) True or false: Viruses are acellular entities.

Que.2(A) Answer the following. (any one out of two) (07)

(1) Discuss: Differential centrifugation in isolation of cell organelles.

(2) Discuss structure and function of mitochondria.

Que.2(B) Attempt any one. (out of two) (04)

(1) Write on endosymbiosis hypothesis on origin of chloroplast.

(2) Write on glyoxisome and peroxisome.

Que.2(C) Attempt any three. (out of five) (03)

(1) Why lysozome is called a suicide sac?

(2) True or false: Mitochondria have maternal origin.

(3) Distinguish between SER and RER.

(4) What do you mean by marker enzymes?

(5) Name components of bacterial cell wall.

Que.3(A) Answer the following. (any one out of two) (07)

(1) Discuss cell cycle.

(2) Explain meiotic cell division.

Que.3(B) Attempt any one. (out of two) (04)

(1) Explain cell differentiation.

(2) Discuss mitotic cell division.

Que.3(C) Attempt any three. (out of five) (03)

(1) True or false: Meotic division leads to haploids.

(2) What is physiological importance of mitosis?

(3) True or false: Meosis is NOT a characteristic of bacterial cells.

(4) Interphase is followed by…..

(5) During cell cycle, DNA content is copied during …….

Que.4(A) Answer the following. (any one out of two) (07)

(1) Explain mechanism of Sodium Potassium ATPase pump.

(2) Discuss Singer and Nicholson model of plasma membrane structure.

Que.4(B) Attempt any one. (out of two) (04)

(1) Write on: Lateral movement of phospholipids in biological membranes.

(2) Explain ionophores and their importance.

Que.4(C) Attempt any three. (out of five) (03)

(1) True or false: Facilitated diffusion requires channel proteins and carrier proteins.

(2) What is simple diffusion?

(3) True or false: Cell membrane regulates transport of materials.

(4) True or false: Flipflop movement of phospholipids does not require energy.

(5) What is the importance of FRAP experiment?

Que.5(A) Answer the following. (any one out of two) (07)

(1) Explain biological nitrogen fixation.

(2) Discuss cytokinins and auxins in detail.

Que.5(B) Attempt any one. (out of two) (04)

(1) Write a note on Hill reaction.

(2) Discuss CAM metabolism.

Que.5(C) Attempt any three. (out of five) (03)

(1) What is photorespiration?

(2) What is the full name of RuBiSCO?

(3) True or false: Role of phosphoenolpyruvate carboxylase is important in C4 plants.

(4) True or false: Abscisic acid promotes dormancy in seeds.

(5) True or false: Genus *Rhizopus* is important in symbiotic nitrogen fixation.

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