

Total No. of Pages: 2

FIFTH SEMESTER

SUPPLEMENTARY EXAMINATION

BT325 Cell Biology (New scheme)

Time: 3:00 Hours

Roll No.

B. Tech. IBT

February 2019

Max. Marks: 50

Note: Answer ALL questions. All questions carry equal marks.
Assume suitable missing data, if any.

- 56
- Q.1 [A] Attempt any TWO of the following [2½+2½]
- Write in detail the structures of any five of the following: (a) Mitochondrial inner membrane; (b) Lysosomal membrane; (c) Endoplasmic reticulum cisternae; (d) Chloroplast thylakoids; (e) Nuclear pore complex; (f) Flagellar axoneme
 - Enlist salient features and various functions of plant vacuole or Golgi complex. Which of its subcompartment is sorting center?
 - Give a descriptive account of the structure and functions of and Bacterial cell wall or Plant cell wall
- [B] Discuss in detail the fluid mosaic model of the structure of plasma membrane. Also discuss the dynamics of cell membrane [5]
- Q.2 [A] Attempt any TWO of the following [2½+2½]
- Discuss the roles of Bcl-2 family of proteins, IAPs, lack of survival factors and caspases in apoptosis. How is apoptosis different from necrosis?
 - Give a descriptive account of cell cycle regulation by cyclin dependent kinases
 - Write in brief about the following: (a) G₁ phase; (b) G₀ phase; (c) G₁ checkpoint; (d) G₂ check point; (e) Metaphase to anaphase transition
- [B] Answer any TWO of the following [2½+2½]
- How does meiosis lead to genetic variability?
 - Discuss the role of microtubules and motor proteins during metaphase and anaphase of mitosis

- Describe the role of APC ubiquitin ligase in the process of mitosis
- Q.3 [A] Attempt any TWO of the following [2½+2½]
- Write in detail about the following: (a) Extracellular matrix; (b) Communicating junctions
 - Briefly describe any two of the following: (a) Phagocytosis and Pinocytosis; (b) Synaptic signaling; (c) Clathrin mediated receptor mediated endocytosis of cholesterol
 - Give an account of uphill transport across plasma membrane. How is it different from facilitated diffusion?
- [B] Enumerate various types of cell surface receptors. Describe in detail G-protein linked receptor mediated signaling [5]
- Q.4 [A] Attempt any TWO of the following [2½+2½]
- Describe the roles of following in cell signaling: (a) Relay proteins; (b) Messenger proteins; (c) cAMP; (d) Transducer proteins; (e) Anchoring proteins
 - Write in detail about vesicle budding and fusion during vesicular transport of proteins
 - Give a descriptive account of protein targeting to plasma membrane or nucleus
- [B] How are cytosolic proteins imported into various subcompartments of mitochondria? [5]
- Q.5 [A] Attempt any TWO of the following [2½+2½]
- Describe the role of p53 during DNA damage
 - What are protooncogenes? How are these converted to oncogenes?
 - Describe the mechanism of following during cancer development: (a) Angiogenesis; (b) Metastasis
- [B] Give a detailed account of any five therapies specifically targeting cancer cells [5]

END