

QUESTION BANK FOR M.Sc. I. Microbiology

(w. e. from June, 2019)

Academic year 2019-2020

Title of Paper: Cell biology

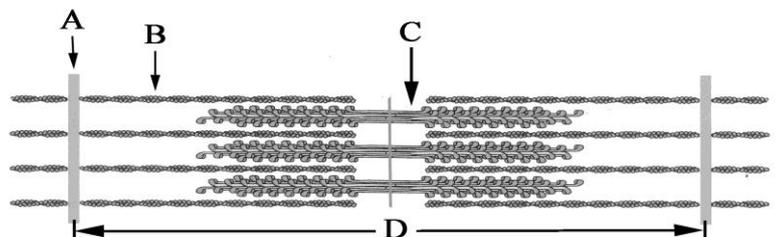
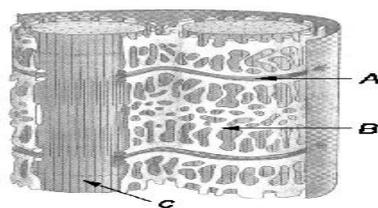
Paper: MICRO 4104

Credit: 04

Question: 100

2 Marks question

1. Which cell division is found during cleavage?
2. How many chromosomes will be found in a cell at anaphase II having $2n = 50$?
3. Which one is the best phase to observe and study chromosomes?
4. What is cyclins in cell cycle?
5. What happens at cell cycle checkpoints?
- 6.
7. What is the purpose of cell cycle checkpoints?
8. Label the diagrams below of a muscle cell and a sarcomere



9. What are the 4 types of cell signaling?
10. Name the largest family of cell surface receptor?
 - a) GPCR
 - b) Ion-channel receptor
 - c) Enzyme-linked receptor
 - d) Nuclear receptor
11. Which of the following signal molecule is NOT used for extracellular signaling?
 - a) Autocrine

- b) Endocrine
- c) Paracrine
- d) Cyclic AMP.

12. Name an Organelle which serves as a primary packaging area for molecules that will be distributed throughout the cell?

- a) Mitochondria
- b) Plastids
- c) Golgi apparatus
- d) Vacuole

13. Name the outer most boundary of cell?

- a) Plasma membrane
- b) Cytoplasm
- c) Nuclear membrane
- d) None of the above

14. Name the process in which the ingestion of material by the cells is done through the plasma membrane?

- a) Egestion
- b) Diffusion
- c) Osmosis
- d) Endocytosis

15. Name the outer most boundary of cell?

- a) Plasma membrane
- b) Cytoplasm
- c) Nuclear membrane
- d) None of the above

16. Name the process in which the ingestion of material by the cells is done through the plasma membrane?

- a) Egestion
- b) Diffusion
- c) Osmosis
- d) Endocytosis

17. Which among the following sentence is not correct about the organelles?

- a) They are found in all Eukaryotic cells.
- b) They are found in multicellular organisms.
- c) They coordinate to produce the cell.
- d) They are small sized and mostly internal.

18. what is the function of Earwax in the Human Body?

19. Name the process in which the passage of water goes from a region of higher concentration to a region of lower concentration through a semi permeable membrane?

- 1. a) Diffusion
- 2. b) Osmosis
- 3. c) Both a) and b)
- 4. d) Neither a) nor b)

20. In paracrine signaling, the signaling molecules affects only

- A. target cells close to the cell from which it was secreted
- B. target cells distant from its site of synthesis in cells of an endocrine organ
- C. both (a) and (b)
- D. none of the above

21. Which of the following is not a type of signaling molecule?

- A. Testosterone
- B. Insulin
- C. Thyroxin

.D Adenylate cyclase

22. Define Autoinducer

23. Define Neurotransmitter

24. State True/False

Peroxisome are found only in few specialized type of eukaryotic cell

25. Define autophagy

Four marks question

1. Short note on Nucleolus
2. Short note on Phases of eukaryotic cell cycle
3. Short note on Apoptosis
4. Short note on Microtubule
5. Diagrammatically represent mitosis
6. Diagrammatically represent Meiosis
7. Short note on Actin
8. Describe the life cycle of Dictyostellium
9. Write a short note on cell communication among Dictyostellium
10. Diagrammatically represent life cycle of Dictyostellium
11. Describe Agr quorum sensing system
12. Diagrammatically represent life cycle of Myxobacteria
13. Describe lux operon in quorum sensing system
14. Short note on Sporulation
15. Short note on G Protein Coupled Receptors
16. What is role of G protein in a signaling pathway?
17. What is Signal transduction? Explain diagrammatically.
18. What is difference between endocrine and paracrine signaling?
19. Explain secretory system in bacteria
20. What is fate of protein with no sorting signal
21. Write a note on rhodopsin
22. Explain pathways of Apoptosis
23. Write a short note on Autophagy

Six marks question

1. Diagrammatically illustrate difference between smooth and rough endoplasmic reticulum
2. Describe the regulation of cell cycle
3. Diagrammatically illustrate the nuclear pore complex
4. How are proteins imported in mitochondria
5. Justify :Mitochondria play significant role in apoptosis
6. Explain the structure and function of Golgi apparatus
7. What is cytoskeleton ?describe its biological significance
8. Explain the targeting of protein of ER by co-translational pathway
9. Describe cell cycle. Diagrammatically represent checkpoints of cell cycle
- 10.How are proteins imported in Chloroplast
- 11.In what ways are cells in G_0 and G_1 similar? How do they differ?
- 12.Justify: cell to cell signaling plays important role in life cycle of Myxobacteria
- 13.Explain molecular mechanism of quorum sensing in Gram positive bacteria
- 14.Explain the biofilm of formation in pathogenic bacteria
- 15.Describe the mechanism of biofilm formation and comment on its application
- 16.Explain the mechanism of quorum sensing. Add a note on quorum sensing molecules in different types of bacteria
- 17.Describe the formation of biofilm with suitable example
- 18.Explain molecular mechanism of quorum sensing in Gram negative bacteria
- 19.Explain the significance of biofilm formation
- 20.Explain the biofilm formation in pathogenic bacteria
- 21.Explain the biofilm formation in Gram positive bacteria
- 22.Write a short note on autoinducer molecules
- 23.Explain molecular mechanism of quorum sensing in slime mould
- 24.Write a short note on A signal in quorum sensing of Myxobacteria
- 25.Describe cell to cell signaling in life cycle of Myxobacteria

Twelve marks question

1. Explain the targeting of protein of ER by post-translational pathway
2. Justify : Dictyostellium can be used as model to study cellular differentiation
3. Explain the phenomenon of quorum sensing and its role in microbial communities
4. Justify: Myxobacteria produce various signaling molecules during fruiting body formation
5. Describe the mechanism of biofilm formation and comment on its application in waste water treatment
6. What is quorum sensing? Discuss its role in virulence of pathogenic bacteria
7. Explain secretory system in bacteria
8. Enlist cell signaling pathways in eukaryotes. Explain any two in detail
9. Draw a simplified “roadmap of protein” Describe protein sorting significance
10. What is Adenlyate cyclase pathway, elaborate it
11. How regulation of cytosolic Ca^{2+} in cell
12. Describe Protein Trafficking among various compartment
13. Describe three component of cytoskeleton in detail
14. Describe the role G protein coupled receptors in cell signaling pathways