

B.Sc. MICROBIOLOGY
THIRD SEMESTER
CELL BIOLOGY
BMB-302
[USE OMR SHEET FOR OBJECTIVE PART]

SET
B

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

(Objective)

Marks: 20

Choose the correct answer from the following:

1×20=20

- Identify the secretory organelle from the following:
 - Endoplasmic Reticulum
 - Golgi
 - Nucleus
 - Ribosome
- Which of the following organelle takes part in protein modification?
 - Cytoplasm
 - Ribosomes
 - ER compartments
 - Golgi apparatus
- Plasma membrane is made up of:
 - A protein, a lipid and a cellulose layer
 - Bimolecular lipid layer embedded by protein
 - A protein layer between two lipid layers
 - A lipid layer between two protein layers
- Human cell differs from plant cells in possessing:
 - Vacuole
 - Golgi
 - Cell wall
 - Peroxisomes
- Which of the following methods does not require any carrier or channel for transport of substances?
 - Simple diffusion
 - Primary active transport
 - Facilitated diffusion
 - Secondary active transport
- The common pathway of entry into the endoplasmic reticulum (ER) of secretory, lysosomal and plasma membrane proteins is best explained by which of the following?
 - Binding of their mRNAs to a special class of ribosome attached to the ER
 - Addition of a common sorting signal to each type of protein after completion of synthesis
 - Addition of oligosaccharides to all three types of proteins
 - Presence of a signal sequence that targets each type of protein to the ER during synthesis
- Which type of movement occurs when Na/K pump is used?
 - Na ions moves out of the cell and K⁺ move in
 - Both Na and K⁺ ions move inside the cell
 - Both Na and K⁺ move out of the cell
 - K⁺ ion moves out of cell and Na ion move in
- A malignant tumor is characterized by:
 - Slow simple expansion of cells
 - Protooncogenes expression
 - Atypical tissue structure and uncontrolled growth and proliferation
 - No chromosomal abnormalities

9. Ribosomes are made up of:
- RNA s and DNAs
 - RNAs and glycolipids
 - RNAs and protein
 - RNAs and lipid
10. At which cell cycle checkpoint, cell cycle is halted if cell's DNA is damaged:
- G₁ - S
 - S - G₂
 - G₂ - M
 - G₀ - G₁
11. Who was the principle scientist behind the term "Omnis cellula-e-cellula?"
- Rudolf Hooke
 - Rudolf Virchow
 - Rudolf Kin
 - Rudolf Brown
12. Microfilaments are composed of a protein called:
- Tubulin
 - Actin
 - Myosin
 - Chitin
13. Which among the following does not contain genetic material?
- Mitochondria
 - Chloroplast
 - Nucleus
 - Lysosome
14. The following sentence is true about cellular theory:
- It's not applicable to virus
 - It's not applicable to fungi
 - It's not applicable to bacteria
 - It's not applicable to algae
15. Who among the following observed first living cell?
- Rudolf Virchow
 - Anton Von Leeuwenhoek
 - Robert Brown
 - None of the above
16. DNA replicates takes place during:
- G1 phase
 - G2 phase
 - S phase
 - Prophase
17. Which type of cancer form in bone and soft tissues, including muscle fat, lymph vessels, etc?
- Leukemia
 - Sarcoma
 - Lymphoma
 - Carcinoma
18. Which among is following is a nuclear protein found in Nuclear pore complex?
- Nuclear lamina
 - Nuclear importin
 - Nucleoporins
 - Karyherins
19. p53 protein is associated with all the following, except:
- Tumor suppression
 - Programmed cell death
 - Apoptosis
 - Post-transcription modifications
20. The proteins encoded by cell cycle that are static and are required throughout the cell cyclw in equal proportion are:
- S Cyclin
 - G1/S Cyclin
 - M Cyclin
 - G1 Cyclin

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

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| 1. Illustrate the function of cell organelles in fungal cell with appropriate diagram. | 10 |
| 2. a) Who demonstrate the cell theory? Explain the contributions made by eminent scientist towards cell theory.
b) Elaborate the mechanism of transport across the plasma membrane. | 6+4=10 |
| 3. a) What do you mean by cell cycle?
b) What are the regulatory checkpoints of cell cycle? | 3+7=10 |
| 4. a) Where does ATP synthesis takes place and how?
b) What do you mean by endosymbiotic theory? | 7+3=10 |
| 5. a) Describe the effect of tumour suppressor gene towards abnormal cell proliferation.
b) Explain the important feature of cancer causing genes. | 6+4=10 |
| 6. a) How Golgi is associated with protein translocation? Explain with suitable diagram.
b) Which cellular organelles is known as the controlling centre of the cell and why? | 6+4=10 |
| 7. a) What are the major difference between microtubules and microfilaments?
b) Discuss the significance of molecular motor in muscle contraction. | 4+6=10 |
| 8. a) Explain the function of lysosome and peroxisome.
b) Elaborate the function of Extra cellular matrix in cellular organizations. | 4+6=10 |

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