



BRAINWARE UNIVERSITY

Term End Examination 2023-2024

Programme – M.Sc.(BT)-2022/M.Sc.(BT)-2023

Course Name – Cell biology

Course Code - MBTC103

(Semester I)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Choose what is the primary function of the nuclear envelope surrounding the nucleus?
 - a) Regulation of ion transport
 - b) Protection of genetic material
 - c) Synthesis of ribosomes
 - d) Lipid storage
- (ii) Select which organelle is involved in the detoxification of drugs and poisons and contains enzymes that neutralize harmful substances?
 - a) Peroxisomes
 - b) Lysosomes
 - c) Endoplasmic reticulum
 - d) Chloroplast
- (iii) Cite how many filamentous structures together comprise the cytoskeleton?
 - a) 1
 - b) 2
 - c) 3
 - d) 4
- (iv) Identify the incorrect statement about the terminologies related to protein sorting?
 - a) Subcellular localization is an integral part of protein functionality
 - b) Many proteins exhibit functions only after being transported to certain compartments of the cell
 - c) All the proteins exhibit functions after being transported to certain compartments of the cell
 - d) Protein sorting is also known as protein targeting
- (v) State appropriately to fill the blank: Signal sequences have a _____ consensus but contain some specific features. They all have a _____ core region preceded by one or more positively charged residues.
 - a) weak, hydrophilic
 - b) weak, hydrophobic
 - c) strong, hydrophilic
 - d) strong, hydrophobic
- (vi) Interpret which of the following occurs in meiosis but not in mitosis?
 - a) Attachment of spindle fibers to kinetochore
 - b) Replication of DNA prior to start of cell division
 - c) Separation of sister chromatids at anaphase
 - d) Pairing of homologous chromosomes at metaphase plate

8. Analyse what do we mean by "capping" of actin filaments? (5)
 9. Analyse the importance of different G protein coupled receptor with an example. (5)
 10. Infer the necessity of different voltage gated channels on the cell membrane , with example. (5)
 11. What do we mean by electrical properties of membrane? Define its function in the cell. (5)
 12. Evaluate what is kinetochore complex and what is its role in transport of chromosomes? (5)
- OR**
- Evaluate the structure of nucleolus in detail. (5)
