



## BRAINWARE UNIVERSITY

### Term End Examination 2020 - 21

Programme – Bachelor of Science (Honours) in Microbiology

Course Name – Cellular Biology

Course Code - BMBC302

Semester / Year - Semester III

Time allotted : 75 Minutes

Full Marks : 60

[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 60=60

1. (Answer any Sixty )

(i) Mitochondria is bounded by;

- |                           |                       |
|---------------------------|-----------------------|
| a) A single unit membrane | b) Two unit membranes |
| c) No membranes           | d) Plasma membranes   |

(ii) What is receptor protein?

- |                       |                 |
|-----------------------|-----------------|
| a) Integral protein   | b) glycoprotein |
| c) peripheral protein | d) all of these |

(iii) Gram staining technique was developed by

- |                          |                        |
|--------------------------|------------------------|
| a) Alexander Fleming     | b) Hans Christian Gram |
| c) Joseph Christian Gram | d) Robert Gram         |

(iv) Polythene chromosomes are found due to ?

- |                |              |
|----------------|--------------|
| a) Mitosis     | b) Endomixes |
| c) Endomitosis | d) Meiosis   |

(v) The animal cells are interconnected by

- |                    |                  |
|--------------------|------------------|
| a) Cell wall       | b) Desmosomes    |
| c) Plasma membrane | d) Plasmodesmata |

(vi) Histone octamere contains \_\_\_\_\_

- a) 8 types of histones
- b) 5 types of histones
- c) 6 types of histones
- d) 8 histones of four different types

(vii) Detoxification of lipid drugs and other harmful compounds in ER is carried out by?

- a) Cytochrome P450
- b) Cytochrome bf
- c) Cytochrome D
- d) Cytochrome F--

(viii) Cell junction is abundant in \_\_\_\_\_

- a) Hepatic cells
- b) Cardiac cells
- c) Epithelial cells
- d) Prokaryotic cells

(ix) Cell drinking is \_\_\_\_\_

- a) Exocytosis
- b) Endocytosis
- c) Pinocytosis
- d) Phagocytosis

(x) Amyloplasts are articles storing \_\_\_\_\_

- a) Fats
- b) Proteins
- c) Lipids
- d) Starch

(xi) Centrioles take part in the formation of \_\_\_\_\_

- a) Cell plate
- b) Spindle
- c) Nucleus
- d) To start cell division

(xii) What is the basic functional and structural unit of organisms?

- a) Nucleus
- b) DNA
- c) Cell
- d) Gene

(xiii) Name the Scientists who first discovered the cell in the piece of cork?

- a) Louis Pasteur
- b) Anton van Leeuwenhoek

c) Robert Hooke

d) Rudolf Virchow

(xiv) Which of the following is not the part of modern cell theory?

a) All living things are made up of one or more cells

b) The cell is a functional and structural unit of life

c) Energy flow takes place within the cell

d) All cells do not have the same chemical composition

(xv) Mark the component which is not the part of lipid bilayer?

a) Glycerol or Sphingosine

b) Fatty acids

c) Tryptophan and methionine

d) Phosphate

(xvi) What is the name of the hollow sphere formed by lipid bilayer?

a) Cholesterol

b) Lipid raft

c) Micelle

d) Liposome

(xvii) Spectrin and ankyrin are the example of \_\_\_\_\_

a) Polytopic

b) Monotopic

c) Peripheral protein

d) Integral protein

(xviii) Materials enter Golgi complex at;

a) Cis region

b) Medial region

c) Trans region

d) Trans Golgi reticulum

(xix) What is the function of antiporters ?

a) Transfer of the second solute in the same direction

b) Transfer of the second solute in the opposite direction

c) Transfer of single solute

d) Transfer of solute through pores

(xx) Which of the following transport mechanism does not use metabolic energy?

- a) Secondary active transport
- b) Primary active transport
- c) Active transport
- d) Passive transport

(xxi) Which of the following glucose transporter works on the liver?

- a) GLUT-1
- b) GLUT-2
- c) GLUT-3
- d) GLUT-5

(xxii) Name the family of transport protein which allows the water to cross the membrane?

- a) Facilitated diffusion
- b) Ion channels
- c) Aquaporins
- d) Active transport

(xxiii) Which of the following ATPases are used to maintain the acidic pH of lysosomes and other vesicles?

- a) P-ATPases
- b) V-ATPases
- c) F-ATPases
- d) ABC transporters

(xxiv) Which of the following process is also known as cell drinking?

- a) Pinocytosis
- b) Phagocytosis
- c) Clathrin-mediated endocytosis
- d) Caveolae-mediated endocytosis

(xxv) Genetic information stored in mRNA is translated to polypeptide by

- 
- a) Ribosome
  - b) Nucleus
  - c) Endoplasmic reticulum
  - d) Golgi apparatus

(xxvi) Which of the following ribosomal RNA does not take part in rDNA organization of E.coli?

- a) 5S RNA
- b) 23S RNA
- c) 16S RNA.
- d) 5.8S RNA

(xxvii) Which of the following is the continuous channel formed by the cell membranes?

- a) Desmosomes
- b) Peroxisomes
- c) Annulus
- d) Integrins

(xxviii) Which of the following is a signaling molecule for bacteria?

- a) Heteroserine lactones
- b) Polyserine lactones
- c) Monoserine lactones
- d) Homoserine lactones

(xxix) The term 'mitochondria; was given by:

- a) Altman
- b) Flemming
- c) Benda
- d) Kollikar

(xxx) Which motor protein superfamily does not move along the microtubules ?

- a) dynein
- b) kinesin
- c) myosin
- d) keratin

(xxxii) Which of the following is not true for chromatin?

- a) Organized structure of DNA and protein
- b) These are highly condensed DNA
- c) It is found in the nucleus
- d) It contains a single dsDNA

(xxxiii) Which of the following microorganism have two nuclei?

- a) Slime molds
- b) Cyanobacteria
- c) Amoeba
- d) Paramecium

(xxxiiii) Which of the following is not a component of the nucleus?

- a) Chromosome
- b) Nucleolus
- c) Cytoplasm
- d) Nuclear envelope

(xxxv) Name the structure which is used to transfer macromolecules between the cytoplasm and nucleus.

- a) Microtubules
- b) Nuclear pores
- c) Cilia
- d) Centrioles

(xxxv) Name the signal which helps protein to move in or out of the nucleus?

- a) Notch signal
- b) Paracrine signal
- c) Nuclear localization signal
- d) Chemical signals

(xxxvi) Non-membrane bound body of the nucleus which disappears in the late prophase and reappears in telophase\_\_\_\_\_

- a) Nucleolus
- b) Chromosome
- c) Nucleoplasm
- d) Nuclear pore

(xxxvii) Name the control center of the eukaryotic cell?

- a) Nucleus
- b) Ribosome
- c) Cytoplasm
- d) Golgi complex

(xxxviii) What is the function of antiporters?

- a) Transfer of the second solute in the same direction
- b) Transfer of the second solute in the opposite direction
- c) Transfer of single solute
- d) Transfer of solute through pores

(xxxix) What is the sedimentation coefficient of mitochondrial ribosome of humans?

- a) 70S
- b) 55 S
- c) 80S
- d) 60S

(xl) Which of the following Scientist discovered ribosome for the first time?

- a) George Emil Palade
- b) Theodor Schwann
- c) Antonie van Leeuwenhoek
- d) Robert Hook

(xli) Which of the following is not a sorting signal present of protein?

- a) Signal patch
- b) Signal peptide
- c) Carbohydrate sequence
- d) Amino acid sequence

(xlii) Which of the following statement is defines polysomes?

- a) Lysosomal aggregation
- b) Multiple units of ribosomes
- c) Attachment of many ribosomes to common mRNA
- d) Attachment of many mRNA to ribosomes

(xliii) Which of the following transport involves translocation of the protein from cytosol to the nucleus ?

- a) Transmembrane transport
- b) Vesicular transport
- c) Non-gated transport
- d) Gated transport

(xliv) Name the site where secreted protein synthesized ?

- a) ER membrane bound ribosomes
- b) Mitochondrial ribosome
- c) Membrane free ribosome
- d) Chloroplast ribosome

(xlv) Which of the following is the largest single membrane-bound intracellular compartment?

- a) Ribosome
- b) Golgi apparatus
- c) Nucleus
- d) Endoplasmic reticulum

(xlvi) Which of the following is not the function of Glycosylation?

- a) Helps in proper folding of the protein
- b) Confer stability in proteins
- c) Helps in cell-cell adhesion
- d) Synthesis of membrane lipid

(xlvii) Name the site where detoxification of xenobiotic compounds takes place?

- a) Cytosol
- b) RER
- c) SER
- d) Ribosome

(xlviii) Which of the following coated vesicle transport protein from ER to Golgi?

- a) Clathrin
- b) COP II
- c) COP I
- d) COP III

(xlix) The chemical products of the cell are shipped and distributed by\_\_\_\_\_

- a) ER lumen
- b) Golgi apparatus
- c) Lysosome
- d) Endosome

(l) Which type of glycosylation takes place in the Golgi apparatus?

- a) T-linked glycosylation
- b) N-linked glycosylation
- c) O-linked glycosylation
- d) G-glycosylation

(li) Which of the following is not the function of the Golgi apparatus ?

- a) Processing and shorting of glycoprotein
- b) Lipid metabolism
- c) Carbohydrate metabolism
- d) Amino acid metabolism

(lii) Which of these are not the hydrolytic enzymes of lysosome?

- a) Lipases
- b) Sulfatases
- c) Phosphatases
- d) Aldolase

(liii) The release of melanosomes from melanocytes is mediated by which of the following process?

- a) Autophagy
- b) Endocytosis
- c) Exocytosis
- d) Pinocytosis

(liv) Name the single membrane which surrounded the vacuoles?

- a) Contractile vacuole
- b) Meninges
- c) Tonoplast
- d) Sarcolemma

(lv) Which of the following organelle works as a lysosome in the plants?



- a) Contractile vacuole
- b) Peroxisome
- c) Plastid
- d) Vacuole

(lvi) Which of the following pumps excess water out of the cell?

- a) Contractile vacuole
- b) Lysosome
- c) Peroxisome
- d) Vacuoles

(lvii) Mark the INCORRECT statement about nuclear lamina.

- a) Filaments present in the inner membrane of the nucleus
- b) Made up of lamin proteins
- c) Provide mechanical support to the nucleus
- d) It has bounded with the ribosomes

(lviii) Which region of chromatin is transcriptionally silent?

- a) Nucleoid
- b) Centromere
- c) Euchromatin
- d) Heterochromatin

(lix) The site of aerobic respiration in eukaryotic cells is\_\_\_\_\_

- a) Peroxisome
- b) Plastid
- c) Mitochondria
- d) Cilia

(lx) How do the small molecules pass through the outer membrane of mitochondria?

- a) ATP pump
- b) Carrier protein
- c) Channels
- d) Porins