

CLASS 11 - BIOLOGY

CELL, The unit of life

1. Select the incorrect matching.

- | | |
|--------------------------|------------------------------|
| a) Chromosome-RNA | b) Digestive enzyme-Lysosome |
| c) Thylakoid-Chloroplast | d) Cristae-Mitochondria |

2. Smallest free-living organism are:

- | | |
|------------|-------------|
| a) PPLOs | b) Virus |
| c) Viroids | d) Bacteria |

3. Who proposed the fluid mosaic model of plasma membrane?

- | | |
|--------------------------|------------------------|
| a) Schleiden and Schwann | b) Robert Brown |
| c) Benda | d) Singer and Nicolson |

4. Protein synthesis takes place in which cell organelle?

- | | |
|--------------------------|---------------|
| a) Lysosome | b) Ribosomes |
| c) Endoplasmic Reticulum | d) Golgi Body |

5. Cell organelles with a single membrane are _____.

- | | |
|-----------------|--------------|
| a) Mitochondria | b) Plastids |
| c) Chloroplast | d) Lysosomes |

6. Which of the following is not part of endomembrane system?

- | | |
|-----------------|--------------------------|
| a) Golgi Body | b) Endoplasmic Reticulum |
| c) Mitochondria | d) Lysosome |

7. Middle lamella is mainly composed of:

- | | |
|----------------------|----------------------|
| a) Hemicellulose | b) Glycogen granules |
| c) Phosphoglycerides | d) Calcium pectate |

8. The process of movement of few ions or molecules across the membrane against a concentration gradient from higher to lower concentration, it is called _____.

- | | |
|---------------------|----------------------|
| a) Active transport | b) Osmosis |
| c) Diffusion | d) Passive transport |

9. Which one is present nearest to plasma membrane?

- | | |
|-------------------|-------------------|
| a) Secondary wall | b) Primary wall |
| c) Tonoplast | d) Middle lamella |

10. Which of the following statements with reference to the cytoskeleton is not correct?
- a) Cytoskeleton helpful in production of ATP
 - b) Cytoskeleton maintains the shape of the cell
 - c) Cytoskeleton helps in motility
 - d) Cytoskeleton helpful in mechanical support
11. Chlorophyll is located inside_____.
- a) Chromatophores
 - b) Thylakoids
 - c) Plasma lemma
 - d) Stroma
12. Lysosomes are called suicide bag because it contain:
- a) Large number of digestive enzyme
 - b) Large amount of hormones
 - c) Large number of toxic materials
 - d) Large amount of lipase
13. What is a tonoplast?
- a) Cell membrane of a plant cell.
 - b) Outer membrane of mitochondria.
 - c) Inner membrane of the chloroplast.
 - d) Membrane boundary of the vacuole of plant cells.
14. Which of the following stains is not used for staining chromosomes?
- a) Carmine
 - b) Safranin
 - c) Basic Fuchsin
 - d) Methylene green
15. A clear zone around Golgi apparatus is zone of _____.
- a) Inclusion
 - b) Separation
 - c) Transition
 - d) Exclusion
16. Proteins synthesized by ribosomes on the endoplasmic reticulum are modified in_____.
- a) Tubules
 - b) Cisternae
 - c) Vesicles
 - d) Stroma
17. Which one is not a part of the Golgi complex?
- a) Cisternae
 - b) Glycosomes
 - c) Tubules
 - d) Vesicles
18. The ribosomes of a polysome translate:
- a) mRNA to Proteins
 - b) Proteins to DNA
 - c) mRNA to DNA
 - d) DNA to DNA
19. The joined area between adjacent cells are _____.
- a) Inter digitations
 - b) Intercellular gap
 - c) Gap junctions
 - d) Desmosome
20. The stain used to visualise mitochondria is:
- a) Janus green
 - b) Acetocarmine

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30. The structural element of chromatin is _____.

- a) Amino acids b) Histone
c) Nucleosome d) Nuclear matrix

31. Largest organelles in the cell are:

- a) Centrioles in animals and plastids in plant cell
- b) Golgi bodies
- c) Lysosomes
- d) Mitochondria in animal cell and chloroplast in plant cell

32. Which of the following plastids stores oil and fat?

- a) Aleuroplasts b) Chloroplasts
c) Amyloplasts d) Elaioplasts

33. The chromatin contains some basic proteins are called as _____.

- a) Satellite b) Non-histones
c) Kinetochores d) Histones

34. Ions connected with forming cross-bridge is_____.

- a) Ca^{2+}
c) Mg^{2+}
- b) K^+
d) Na^+

35. Two cell organelles in plant cell having their own genetic material are called _____.

- a) Chloroplast and Golgi bodies b) Mitochondria and Chloroplast
c) Golgi bodies and lysosomes d) Mitochondria and Golgi bodies

36. A common characteristic feature of plant sieve tube cells and most of mammalian erythrocytes is:

- a) Presence of cell wall b) Absence of mitochondria
c) Presence of haemoglobin d) Absence of nucleus

37. The ribosome is granules formed of:

- a) mRNA and rRNA
b) rRNA and protein
c) rRNA and tRNA
d) mRNA and protein

38. The staining procedure is developed by:

- a) Hans Christian Gram b) Schwann
c) A.V.Leeuwenhoek d) Schleiden

39. Plasmodesmata take parts in:

- a) Synchronize mitotic divisions
- b) Locomotion in unicellular organism
- c) Movement of substances between cells
- d) Cytoplasmic streaming

40. The structure of the plasma membrane fluid mosaic model is proposed by:

- a) Singer and Nicolson

- 50. Read the following and answer any four questions:**

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may vary greatly in shape and size. The organization of the prokaryotic cell is fundamentally similar even though prokaryotes exhibit a wide variety of shapes and functions. Most prokaryotic cells, particularly bacterial cells, have a chemically complex cell envelope.

- i. Which is the outermost layer of the cell envelope in prokaryotes?
 - a. Glycocalyx
 - b. Cell wall
 - c. Plasma membrane
 - d. Mesosome
- ii. Bacteria can be classified into _____ groups on the basis of the differences in the cell envelopes and the manner in which they respond to the staining procedure developed by Gram.
 - a. Two
 - b. Three
 - c. Five
 - d. Four
- iii. A special membranous structure called _____ is formed by the extensions of the plasma membrane into the prokaryotic cell.
 - a. Golgi body
 - b. Ribosome
 - c. Mesosome
 - d. Inclusion body
- iv. The _____ are small bristle-like fibres sprouting out of the cell.
 - a. Pili
 - b. Flagellum
 - c. Pseudopodia
 - d. Fimbriae
- v. **Assertion:** Glycocalyx in the cell envelope of prokaryotes differs in composition and thickness among different bacteria.
Reason: It could be a loose sheath called the capsule.
 - a. Both assertion and reason are true, and reason is the correct explanation of the assertion.
 - b. Both assertion and reason are true, and reason is not the correct explanation of the assertion.
 - c. Assertion is true but reason is false.
 - d. Both assertion and reason are false.

51. Read the following and answer any four questions:

Electron microscopic studies of eukaryotic cells reveal the presence of a network or reticulum of tiny tubular structures scattered in the cytoplasm that is called the endoplasmic reticulum (ER). The endoplasmic reticulum (ER) is a large network of membrane-bound tubes and sheets which look like long tubules or round or oblong bags (vesicles).

- i. The endoplasmic reticulum bearing _____ on their surface is called the rough endoplasmic reticulum (RER).
 - a. Ribosomes
 - b. Lysosomes

- c. Golgi body
 - d. Plastids
- ii. RER is frequently observed in the cells actively involved in _____ synthesis and secretion.
- a. Lipid
 - b. Glycoprotein
 - c. Glucose
 - d. Protein
- iii. The smooth endoplasmic reticulum is the major site for synthesis of _____.
- a. Lipid
 - b. Protein
 - c. Glucose
 - d. Starch
- iv. ER divides the intracellular space into _____ distinct compartments.
- a. Three
 - b. Six
 - c. Two
 - d. Four
- v. **Assertion:** The ER often shows ribosomes attached to their outer surface.
- Reason:** In animal cells, lipid-like steroidal hormones are synthesised in RER.
- a. Both assertion and reason are true, and reason is the correct explanation of the assertion.
 - b. Both assertion and reason are true, and reason is not the correct explanation of the assertion.
 - c. Assertion is true but reason is false.
 - d. Both assertion and reason are false.

52. Read the following and answer any four questions:

The detailed structure of the membrane was studied only after the advent of the electron microscope in the 1950s. Meanwhile, chemical studies on the cell membrane, especially in human red blood cells (RBCs), enabled the scientists to deduce the possible structure of the plasma membrane. These studies showed that the cell membrane is composed of lipids, proteins and carbohydrates.

- i. Which component of the plasma membrane is arranged as a bilayer?
 - a. Nucleic acid
 - b. Lipid
 - c. Protein
 - d. Carbohydrate
- ii. The lipid component of the membrane mainly consists of _____.
 - a. Phosphoglycerides
 - b. Amino
 - c. acids
 - d. Glycoproteins
- iii. What percentage of the membrane of human erythrocytes consists of proteins?
 - a. 40
 - b. 70

c. 52

d. 66

iv. Depending on the ease of extraction, membrane proteins can be of _____ types.

a. Three

b. Two

c. Four

d. Five

v. **Assertion:** The plasma membrane is selectively permeable to some molecules present on either side of it.

Reason: Neutral solutes may move across the membrane by the process of simple diffusion.

a. Both assertion and reason are true, and reason is the correct explanation of the assertion.

b. Both assertion and reason are true, and reason is not the correct explanation of the assertion.

c. Assertion is true but reason is false.

d. Both assertion and reason are false.

53. Read the following and answer any four questions:

Plastids are found in all plant cells and in euglenoids. These are easily observed under the microscope as they are large. They bear some specific pigments, thus imparting specific colours to the plants. Plastids consist of numerous membrane layers embedded in a material called the stroma. They have their own genome and ribosomes.

i. The _____ are the colourless plastids of varied shapes and sizes with stored nutrients.

a. Leucoplasts

b. Chloroplasts

c. Chromoplasts

d. Carotenoids

ii. The _____ store proteins in grains.

a. Amyloplasts

b. Aleuroplasts

c. Elaioplasts

d. Carotenoid

iii. Which type of plastid stores carbohydrates in potatoes?

a. Amyloplasts

b. Aleuroplasts

c. Elaioplasts

d. Carotenoid

iv. The space limited by the inner membrane of the chloroplast is called the stroma.

a. Matrix

b. Cytoplasm

c. Stroma

d. Lumen

v. **Assertion:** The chloroplasts contain chlorophyll and carotenoid pigments which are responsible for trapping light energy essential for photosynthesis.

Reason: They also impart colours to the parts of the plant as yellow, orange or red colour.

- a. Both assertion and reason are true, and reason is the correct explanation of the assertion.
- b. Both assertion and reason are true, and reason is not the correct explanation of the assertion.
- c. Assertion is true but reason is false.
- d. Both assertion and reason are false.

54. Read the following and answer any four questions:

Camillo Golgi (1898) first observed densely stained reticular structures near the nucleus. The Golgi apparatus was first described by Camillo Golgi. Golgi apparatus consists of a set of membrane-bounded, fluid-filled vesicles, vacuoles and flattened cisternae. The cisternae consist of many flat, disc-shaped sacs of 0.5µm to 1.0µm diameter.

- i. The Golgi cisternae are concentrically arranged near the _____.
 - a. Periphery
 - b. Vacuole
 - c. Plastid
 - d. Nucleus
- ii. Golgi apparatus is the important site of formation of _____.
 - a. Glycoproteins
 - b. Glycolipids
 - c. Phospholipids
 - d. Both glycoproteins and glycolipids.
- iii. In Golgi apparatus, _____ are stacked parallel to each other.
 - a. Thylakoids
 - b. Cisternae
 - c. Grana
 - d. Cristae
- iv. The plant cells contain many freely distributed subunits of Golgi apparatus, called _____.
 - a. Dictyosomes
 - b. Stroma
 - c. Thylakoid
 - d. Granum
- v. **Assertion:** Materials to be packaged in the form of vesicles from the ER fuse with the cis face of the Golgi apparatus.
Reason: The Golgi apparatus remains in close association with the endoplasmic reticulum.
 - a. Both assertion and reason are true, and reason is the correct explanation of the assertion.
 - b. Both assertion and reason are true, and reason is not the correct explanation of the assertion.
 - c. Assertion is true but reason is false.
 - d. Both assertion and reason are false.

55. Assertion (A): Lipids present in the outer and inner side of the bilayer membrane are mostly the same.

Reason (R): Oligosaccharides are attached to the external surface as well as the inner surface of a biomembrane.

a) Both A and R are true and R is the correct explanation of A.

c) A is true but R is false.

b) Both A and R are true but R is not the correct explanation of A.

d) A is false but R is true.

56. **Assertion (A):** In animal cells lipid-like steroidal hormones are synthesised in SER.

Reason (R): The smooth endoplasmic reticulum (SER) is the major site for synthesis of lipid.

a) Both A and R are true and R is the correct explanation of A.

c) A is true but R is false.

b) Both A and R are true but R is not the correct explanation of A.

d) A is false but R is true.

57. **Assertion (A):** Many molecules can move briefly across the membrane without any requirement of energy and this is called passive transport.

Reason (R): Neutral solutes may move across the membrane by the process of simple diffusion.

a) Both A and R are true and R is the correct explanation of A.

c) A is true but R is false.

b) Both A and R are true but R is not the correct explanation of A.

d) A is false but R is true.

58. **Assertion (A):** In the chromoplasts fat-soluble carotenoid pigments like carotene, xanthophylls and others are present.

Reason (R): The leucoplasts are the colourless plastids of varied shapes and sizes with stored nutrients.

a) Both A and R are true and R is the correct explanation of A.

c) A is true but R is false.

b) Both A and R are true but R is not the correct explanation of A.

d) A is false but R is true.

59. **Assertion (A):** Cell is the fundamental structural and functional unit of all living organisms.

Reason (R): Anything less than a complete structure of a cell does not ensure independent living.

a) Both A and R are true and R is the correct explanation of A.

c) A is true but R is false.

b) Both A and R are true but R is not the correct explanation of A.

d) A is false but R is true.

60. **Assertion (A):** A special membranous structure is a mesosome which is formed by the extensions of the plasma membrane into the cell.

Reason (R): In some prokaryotes like cyanobacteria, there are other membranous extensions chromatophores present but mesosome absent.

a) Both A and R are true and R is the correct explanation of A.

c) A is true but R is false.

b) Both A and R are true but R is not the correct explanation of A.

d) A is false but R is true.