



## TOPIC: CELL BIOLOGY

- The arrangement of microtubules of a flagellum (A) and a basal body (B) in eukaryotes is:-  
(1) A=9+2, B=9+2                      (2) A=8+2, B=5+4  
(3) A=9+0, B=9+2                      (4) A=9+2, B=9+0
- Which of the following sequence is correct with respect to size?  
(1) Eukaryotic cell> PPLO>Viruses>Bacteria  
(2) Eukaryotic cell>Bacteria>PPLO>viruses  
(3) Eukaryotic cell> PPLO> Bacteria> Viruses  
(4) Eukaryotic cell>Viruses>PPLO>Bacteria
- In prokaryotes, the genetic material is  
(1) DS circular DNA with histone protein                      (2) DS linear DNA without histone protein  
(3) DS circular DNA without histone protein                      (4) SS circular DNA without histone protein
- Which of the following cell surface structures is/are used by bacteria in motility?  
(1) Pili                      (2) Fimbriae                      (3) Flagella                      (4) All of these
- Select the statements which are related to Schwann.  
(i) He reported that cells have thin outer layer which is today known as plasma membrane  
(ii) Cell wall is a unique character of the plant cell.  
(iii) Body of plants and animals are composed of cells and products of cells  
(1) Only (i)                      (2) Only (iii)                      (3) (i) and (iii)                      (4) All of these
- Neutral solutes may move across the membrane by a process of simple \_\_\_\_\_, \_\_\_\_\_concentration gradients (from higher to lower concentration)  
(1) Method against  
(2) Transport, along  
(3) Diffusion, along  
(4) Active transport, against
- How many of the following cell organelles is found in both plant cells and prokaryotes  
*Cell wall, Plasma membrane, lysosomes, ribosomes, mesosomes, plastids*  
(1) 5                      (2) 3                      (3) 2                      (4) 4
- Match the column I with column II

	Column I		Column II
A	Metacentric	I	At the tip
B	Submetacentric	II	Almost near tip
C	Acrocentric	III	At the middle
D	Telocentric	IV	Slightly away from the middle

- (1) A-I, B-IV, C-II, D-III
- (2) A-II, B-IV, C-I, D-III
- (3) A-III, B-IV, C-II, D-I
- (4) A-IV, B-III, C-I, D-II

9. The number of chloroplasts in *chlamydomonas* is \_\_\_\_\_ and in mesophyll cells ranges between \_\_\_\_\_ respectively

- (1) 1, 24-30                      (2) 2, 24-34  
(3) 20-40, 1                      (4) 1, 20-40

10. Matrix in mitochondria possess

- (1) Two molecules of linear DNA, RNA and Ribosomes  
(2) Two molecules of circular DNA, RNA and Ribosomes  
(3) Single molecule of linear DNA, RNA and Ribosomes  
(4) Single molecule of circular DNA, RNA and Ribosomes

11. **Statement I:** Ribosomes are non-membrane bound organelle found only in eukaryotic cells

**Statement II:** Centrioles another non-membrane bound organelle found only in eukaryotic cells

(1) Only statement II is correct

- (2) Only statement I is correct  
(3) Both statements are correct  
(4) Both statements are false

12. Quasifluid nature of membrane can be measured by

(1) Lateral movements of proteins

- (2) Rotational movement of proteins  
(3) Flip flop movement of proteins  
(4) Flexing movement of proteins

13. Refer to the given figure and select the incorrect statement regarding it.



(1) The cis and trans faces of the organelle are entirely different, but interconnected.

(2) They consists of many flat, disc-shaped sacs or cisternae.

(3) They are the important site of formation of glycoprotein and glycolipids.

(4) Diameter of cisternae is  $0.2 \mu\text{m}$ - $0.1 \mu\text{m}$

14. Choose the incorrect statement/s regarding bacterial cell.

- (A) Glycocalyx is outermost envelope in bacteria.  
(B) Glycocalyx could be a loose sheath called capsule.  
(C) Glycocalyx may be thick and tough called slime layer.  
(D) A special structure formed by the plasma membrane is called mesosome.  
(E) Small bristle-like fibres sprouting out of the cell are called fimbriae.

- (1) A and E only                      (2) D and E only  
(3) B and C only                      (4) A and D only

15. A structure that connect the cytoplasm of neighbouring cells and another which holds or glues the different neighbouring cell together. These are:

- (1) Cell wall and middle lamella respectively  
(2) Plasmodesmata and middle lamella respectively  
(3) Middle lamella and desmosomes respectively  
(4) Middle lamella and plasmodesmata respectively

16. Choose the incorrect statement from following

- (1) Ribosomes are the site of protein synthesis
- (2) Pili do not play a role in motility
- (3) Inclusion bodies are bounded by membrane
- (4) Cell wall prevent the bacteria from bursting and collapsing

17. Lysosomes are \_\_\_\_\_ vesicular structures formed by the process of packaging in the \_\_\_\_\_.

- (1) Membrane bound, Golgi apparatus
- (2) Non-membrane bound, Golgi apparatus
- (3) Membrane bound, ER
- (4) Non-membrane bound, ER

18. How many statements are incorrect about centrosome?

- (i) Peripheral microtubules are arranged as triplet
- (ii) Centrioles are found in all kinds of cells
- (iii) Peripheral microtubules are linked to each other by radial spokes
- (iv) Central part does not have any proteinaceous material

- (1) One
- (2) Four
- (3) Two
- (4) Three

19. The larger sub-unit in 80 s ribosome is :-

- (1) 50 s
- (2) 60 s
- (3) 40 s
- (4) 30 s

20. In "singer and Nicolson" model of plasma membrane, the extrinsic proteins are:-

- (1) Tightly associated with intrinsic protein and can be easily separated
- (2) Loosely associated with intrinsic protein
- (3) Loosely associated with intrinsic protein and can be easily separated
- (4) Loosely associated with intrinsic protein and can't be easily separated

21. Which of the following pairs is mismatched?

- (1) Glycocalyx—may be capsule or slime layer
- (2) Pili-Reproduction
- (3) Cell wall— Protective, determines shape prevents from bursting
- (4) Flagella, Pili and Fimbriae—Surface structures of bacteria cell

22. Lipids are arranged within the membrane with –

- (1) Polar heads towards innerside and the hydrophobic tails towards outside
- (2) Both heads and tails towards outside
- (3) Heads towards outside and tail towards inside
- (4) Both heads and tails towards innerside

23. Which of the following is the correct sequence / route of the secretory product?

- (1) ER → Vesicles → Cis region of GB → Trans region of GB → Vesicles → Plasma membrane
- (2) RER → GB → Lysosome → Nuclear membrane → Plasma membrane
- (3) ER → Vesicles → Trans region of GB → Cis region of GB → Vesicles → Plasma membrane
- (4) Lysosome → ER → GB → Vesicles → Cell membrane

24. Which of the following statement is incorrect?

- (1) Mitochondria, unless specifically stained are not easily visible under the microscope
- (2) Physiological activity of cells determines the number of mitochondria per cell
- (3) Mitochondria, a power house of cell has DNA, RNA, ribosomes and enzyme. So it can survive outside the cell
- (4) Mitochondria divide by fission

25. I. Amyloplasts – Store starch e.g., potato

II. Elaioplasts – Store oil and fat

III. Aleuroplast – Store protein

The above types of plastids are included under –

(1) Leucoplasts (Colourless plastid)

(2) Chromoplasts (Non green colour plastid)

(3) Chloroplast (green plastid)

(4) None

26. Which of the following is true for nucleolus?

(1) Larger nucleoli are present in dividing cells

(2) It is membrane-bound structure

(3) It is a site for active ribosomal RNA synthesis

(4) It takes part in spindle formation

27. Match the column and identify the correct option.

	Column-I		Column-II
A	Thylakoid	I	Disc shaped sacs in Golgi apparatus
B	Cristae	II	Condensed structure of DNA
C	Cisternae	III	Flat membranous sacs in stroma
D	Chromatin	IV	Infoldings in mitochondria

(1) A-III; B-IV; C-I; D-II

(2) A-III; B-I; C-IV; D-I

(3) A-III; B-IV; C-II; D-I

(4) A-IV; B-III; C-I; D-II

28. The membrane of the erythrocytes has approximately \_\_\_% of proteins and \_\_\_% lipids

(1) 42, 50

(2) 52, 40

(3) 50, 50

(4) 60, 40

29. Which one of the following is not considered as a part of the endomembrane system?

(1) Golgi complex

(2) Peroxisome

(3) Vacuole

(4) Lysosome

30. The cytoskeleton is a proteinaceous network of fibers in the cytoplasm. It is involved in:

(1) Mechanical support

(2) Motility

(3) Maintenance of cell-shape

(4) All of these

31. Which of the following statements are incorrect?

(i) Plant cells have centrioles which are absent in almost all animals cells

(ii) Ribosome are the site of protein synthesis

(iii) The middle lamella is a layer mainly of calcium carbonate which holds the different neighbouring cells together

(iv) In animal cell, steroidal hormones are synthesized by smooth endoplasmic reticulum

(1) (i) and (iii)

(2) (iii) and (iv)

(3) (ii) and (iv)

(4) (i) and (iv)

32. Which of the following pair lack the unit membrane :-

(1) Nucleus & E.R.

(2) Mitochondria & chloroplast

(3) Ribosome & nucleolus

(4) Golgi body & lysosome

33. Chromosomes composed of :-

(1) DNA, RNA, Histones, Non histones

(2) DNA and Histones

(3) DNA and RNA

(4) DNA, RNA and Histones

34. Which cell organelle divides the intracellular space into two distinct compartments, i.e. luminal (inside) and extra luminal (cytoplasm) compartments?

(1) Golgibody (2) Mitochondria

(3) Endoplasmic reticulum (4) Lysosome

35. Which of the following is/are function(s) of golgi body?

(I) Chemical modification of lipids and proteins

(II) Detoxification

(III) Formation of acrosome

(IV) Glycogen synthesis & breakdown

Choose the correct option –

(1) I and II are incorrect

(2) I and III are correct

(3) II is incorrect and remaining are correct

(4) II and III are incorrect

36. The most abundant lipid in the cell membrane is

(1) Cutin

(2) Cholesterol

(3) Steroid

(4) Phospholipid / phosphoglycerides

37. Bodies of animals and plants are composed of cells and their products, correct match for the statement is:

(1) Theodore Schwann – Cell theory

(2) Matthias Schleiden – Cell theory

(3) Theodore Schwann – Cell hypothesis

(4) Matthias Schleiden – Cell hypothesis

38. Which of the following statements is incorrect about plasmids?

(1) They are extra chromosomal DNA

(2) They are used in genetic engineering

(3) They help in the replication of prochromosome

(4) They are small, circular and confer certain unique phenotypic characters to some bacteria like resistance to antibiotics

39. How many of the following chemicals are present in the cell wall of algae:

Cellulose, Galactans, Mannans,  $\text{CaCO}_3$ , hemicelluloses, pectins, proteins, chitin, ca pectate

(1) 5

(2) 6

(3) 4

(4) 7