

NEET UG (2024)

Biology Quiz-13

Botany

SECTION: A

1. Hydrophilic part of membrane is provided by
(1) Glycerol (2) Phosphate
(3) Fatty acid (4) All of these
2. Gram negative and Gram-positive bacteria is divided on the basis of
(1) Thickness of cell membrane
(2) Thickness of glycocalyx
(3) Thickness of cell envelope
(4) Thickness of cell wall
3. Which is not present in bacteria?
(1) Plasmid (2) 80S ribosome
(3) Flagella (4) Nucleoid
4. Naked DNA present in
(1) Muscle cell
(2) *Mycoplasma*
(3) *Chlamydomonas*
(4) Yeast
5. Chromatophores take part in
(1) Growth (2) Movement
(3) Respiration (4) Photosynthesis
6. Which of the following components provides sticky character to the bacterial cell?
(1) Cell wall
(2) Nuclear membrane
(3) Plasma membrane
(4) Glycocalyx
7. Select the wrong statement
(1) Cyanobacteria lack flagellated cells.
(2) *Mycoplasma* is a wall-less microorganism
(3) Bacterial cell wall is made up of peptidoglycan.
(4) Pilli and fimbriae are mainly involved in motility of bacterial cells
8. Which of the following structures is not found in a prokaryotic cell?
(1) Ribosome
(2) Mesosome
(3) Plasma membrane
(4) Nuclear envelope
9. A specialised structure develop from cell membrane of prokaryotes cell is:
(1) Flagella (2) Mesosome
(3) Cilia (4) Vacuoles
10. Which of the following does not differ in *E. coli* and *Chlamydomonas*?
(1) Cell membrane
(2) Ribosomes
(3) Chromosomal Organisation
(4) Cell wall
11. Which of the following statements about inclusion bodies is incorrect?
(1) These are involved in ingestion of food particles.
(2) They lie free in the cytoplasm.
(3) These represent reserve material in cytoplasm.
(4) They are not bound by any membrane.
12. Inclusion bodies of blue-green, purple and green photosynthetic bacteria are
(1) Gas vacuoles (2) Centrioles
(3) Microtubules (4) Contractile vacuoles
13. Endomembrane system not involves
(1) Peroxisome
(2) ER
(3) Golgi Body
(4) Lysosome
14. Endomembrane system includes
(1) Membrane bound
(2) Coordinated
(3) Non-coordinated
(4) Both (1) and (2)
15. Plant cell wall is made up of:
(1) Cellulose, Hemicellulose, and CaCO_3
(2) Hemicellulose, and CaCO_3
(3) Cellulose, Hemicellulose, protein and pectin
(4) All of the above

16. Lignin is present in
 (1) Primary cell wall
 (2) Cell membrane
 (3) Secondary cell wall
 (4) Middle lamella
17. Middle lamella is made up of
 (1) Calcium pectate
 (2) Lignin
 (3) Pectin
 (4) Chitin
18. Plant cell without cell wall
 (1) Protoplasm (2) Cytoplasm
 (3) Protoplast (4) Nucleus
19. Structure is not present in bacteria
 (1) Glycocalyx (2) Fimbriae
 (3) Pilli (4) Cilia
20. Outermost structure of cell envelope is
 (1) Cell wall (2) Glycocalyx
 (3) Cell membrane (4) Mesosomes
21. Cell wall absent in
 (1) *Lactobacillus*
 (2) *Mycoplasma*
 (3) *Nostoc*
 (4) *E.coli*
22. Which of the following is not role of cell wall?
 (1) Provide shape
 (2) Prevent bursting
 (3) Structural support
 (4) Have channels
23. Gas vacuole is present in:
 (1) Cyanobacteria (2) Green algae
 (3) Yeast (4) *Mycoplasma*
24. Prokaryotic cell is characterised by
 (1) Presence of nucleus, mitochondria and plastids
 (2) Absence of cell wall, DNA and plastids
 (3) Presence of spindle fibres, Mitochondria and golgi bodies.
 (4) Absence of endoplasmic reticulum, golgi bodies and spindle fibres.

25. The eukaryotes include
 (1) All the protists, plants, animals and fungi
 (2) Few fungi
 (3) Few bacteria
 (4) All animals and few plants
26. Feature which is present in all eukaryotic cells
 (1) Compartmentalisation of cytoplasm through the presence of membrane bound organelles
 (2) Organised nucleus with a nuclear envelope
 (3) Presence of ribosome in cytoplasm
 (4) All of the above
27. Which is not common structure in animal cell and plant cell?
 (1) Centriole (2) Ribosome
 (3) ER (4) Mitochondria
28. The main area of various types of activities of a cell is
 (1) Plasma membrane
 (2) Mitochondrion
 (3) Cytoplasm
 (4) Nucleus
29. An elaborate network of filamentous proteinaceous structures present in the cytoplasm which helps in the maintenance of cell shape is called
 (1) Thylakoid
 (2) Endoplasmic reticulum
 (3) Plasmalemma
 (4) Cytoskeleton.
30. A cell organelle containing hydrolytic enzymes is
 (1) Lysosome
 (2) Microsome
 (3) Ribosome
 (4) Mesosome.

31. Which of these is mis-matched?

(1)	Amyloplasts	:	Store protein granules
(2)	Elaioplasts	:	Store oils or fats
(3)	Chloroplast	:	Contain chlorophyll pigments
(4)	Chromoplasts	:	Contain coloured pigments other than chlorophyll

32. The cell with in cell organelle is
 (1) Chloroplast (2) Mitochondria
 (3) Both (1) and (2) (4) Bacteria
33. The membrane of the ER are continuous with the membrane of
 (1) Nucleus
 (2) Golgi body
 (3) Membrane of mitochondria
 (4) Membrane of plastid
34. The hydrophobic tails of a phospholipid bilayer are oriented towards the—
 (1) Interior of the Plasma membrane
 (2) Extracellular fluid surrounding the cell
 (3) Cytoplasm of the cell
 (4) Nucleus of the cell
35. A molecule that can diffuse freely through a phospholipid bilayer is probably:
 (1) Water soluble
 (2) Non-polar
 (3) Positively charged
 (4) Negatively charged

SECTION: B

36. The main organelle involved in modification and routing of newly synthesised proteins to their destination is
 (1) Mitochondria
 (2) Endoplasmic reticulum
 (3) Lysosome
 (4) Chloroplast
37. Who amongst the following first described Nucleus in 1831?
 (1) Anton Von Leeuwenhoek
 (2) Robert Brown
 (3) Robert Hooke
 (4) Hammerling
38. Nuclear matrix is known as ...A... and contains ...B... and ...C...
 (1) A-Perinuclear space, B-Chromatin, C-Nucleolus
 (2) A-Nucleolus, B-Chromatin, C-Nucleoplasm
 (3) A-Chromatin, B-Nucleolus, C-Perinuclear space
 (4) A-Nucleoplasm, B-Nucleolus, C-Chromatin

39. If nucleolus of the cell is destroyed which of these in the cell will not be formed?
 (1) Ribosomes
 (2) Plastids
 (3) Mitochondria
 (4) Lysosomes
40. In centrioles
 (1) 9 + 0 arrangement is found
 (2) All nine tubules are triplet
 (3) Both (1) and (2) are correct
 (4) Neither (1) nor (2) is correct
41. Smooth endoplasmic reticulum acts as a major site for the synthesis of
 (1) Lipids and steroids
 (2) Proteins
 (3) Ribosomes
 (4) DNA
42. The Golgi complex participates in
 (1) Respiration in bacteria
 (2) Formation of secretory vesicles
 (3) Fatty acid breakdown
 (4) Activation of amino acid
43. Which of the following cell organelles is enclosed by a single membrane?
 (1) Chloroplast (2) Lysosomes
 (3) Nucleus (4) Mitochondria
44. Which of the following is correct regarding the origin of lysosomes?
 (1) Endoplasmic reticulum → Golgi bodies → Lysosomes
 (2) Golgi bodies → Endoplasmic reticulum → Lysosomes
 (3) Nucleus → Golgi bodies → Lysosomes
 (4) Mitochondria → Endoplasmic reticulum → Golgi bodies → Lysosomes
45. Which of the following pairs of organelles does not contain DNA?
 (1) Chloroplast and vacuoles
 (2) Lysosomes and vacuoles
 (3) Nuclear envelope and mitochondria
 (4) Mitochondria and lysosomes

- 46.** The stroma of chloroplast contains enzymes required for synthesis of
(1) Carbohydrates (2) Proteins
(3) Mesophyll (4) Both (1) and (2)
- 47.** The sedimentation coefficient of ribosome is a measure of
(1) Density (2) Number
(3) Structure (4) Shape
- 48.** Infoldings of plasma membrane in bacteria are called
(1) Nucleoid (2) Plasmid
(3) Pilli (4) Mesosomes

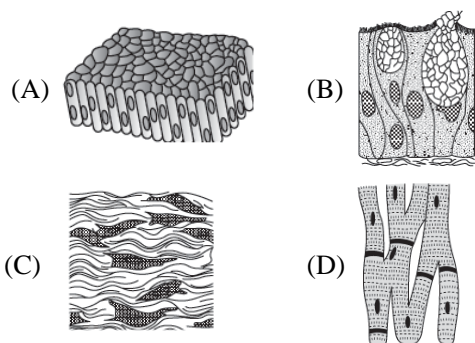
- 49.** Select the incorrectly matched pair.
(1) Flemming – Chromatin
(2) Camillo Golgi – Endoplasmic reticulum
(3) Palade – Ribosome
(4) Schleiden – Cell theory
- 50.** Which of the following statements is incorrect w.r.t. fluid mosaic model of plasma membrane?
(1) Integral proteins are partially or totally buried in the membrane.
(2) The non-polar tail of unsaturated hydrocarbons is protected from the aqueous environment.
(3) The quasi-fluid nature of lipids enables lateral movement of protein.
(4) The ratio of protein and lipid varies in different cell types.

(ZOOLOGY)

SECTION-A

1. The type of muscle present in our
- (1) Heart is involuntary and unstriated smooth muscle.
 - (2) Intestine is striated and involuntary.
 - (3) Thigh is striated and voluntary.
 - (4) Upper arm is smooth muscle and fusiform in shape.

2. The four sketches (A, B, C and D) given below, represent four different types of animal tissues. Which one of these is correctly identified in the options given, along with its correct location and function?



	Tissue	Location	Function
(1)	(C) Collagen fibres	Cartilage	attach skeletal muscles to bones
(2)	(D) Smooth muscle tissue	Heart	heart contraction
(3)	(A) Columnar epithelium	Nephron	secretion and absorption
(4)	(B) Glandular epithelium	Intestine	secretion

3. Choose the correctly matched pair:
- (1) Inner lining of salivary ducts – Ciliated epithelium
 - (2) Moist surface of buccal cavity – Glandular epithelium
 - (3) Tubular parts of nephrons – Cuboidal epithelium
 - (4) Inner surface of bronchioles – Squamous epithelium

4. The function of the gap junction is to
- (1) Facilitate communication between adjoining cells by connecting the cytoplasm for rapid transfer of ions, small molecules and some large molecules.
 - (2) Separate two cells from each other.
 - (3) Stop substance from leaking across a tissue.
 - (4) Performing cementing to keep neighbouring cells together.
5. Smooth muscles are
- (1) Voluntary, multinucleate, cylindrical
 - (2) Involuntary, cylindrical, striated
 - (3) Voluntary, spindle-shaped, uninucleate
 - (4) Involuntary, fusiform, non-striated
6. Which of the following cells are found in neural tissue?
- (1) Neuron
 - (2) Neuroglial cells
 - (3) Both (1) and (2)
 - (4) fibroblasts
7. Which of the following possess semi-fluid ground substance?
- (1) Areolar tissue
 - (2) Adipose tissue
 - (3) Blood
 - (4) Both (1) and (2)
8. Which of the following is not a part of areolar tissue?
- (1) Fibroblasts
 - (2) Mast cells
 - (3) Osteocytes
 - (4) Macrophage
9. In which tissue, the fibres and fibroblasts are compactly packed?
- (1) Dense regular connective tissue
 - (2) Dense irregular connective tissue
 - (3) Both (1) and (2)
 - (4) Cartilage
10. What kind of tissue is goblet cells?
- (1) Epithelial tissue
 - (2) Connective tissue
 - (3) Neural tissue
 - (4) All of these

11. If the cuboidal epithelium turns out to have microvilli on it, what will it be called?

- (1) Ciliated columnar epithelium
- (2) Pseudo ciliated epithelium
- (3) Both (1) and (2)
- (4) Brush bordered cuboidal epithelium

12. Where is columnar epithelium found?

- (1) Lining of intestine
- (2) Outer wall of stomach
- (3) Proximal convoluted tubule
- (4) All of these

13. Cuboidal or columnar epithelium which is specialised for secretion are called _____.

- (1) Ciliated epithelium
- (2) Glandular epithelium
- (3) Both (1) and (2)
- (4) None of the above

14. Which of the following is unicellular glandular epithelium?

- (1) Salivary gland
- (2) Islets of langerhan's
- (3) Goblet cells
- (4) All of these

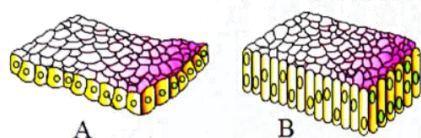
15. Cuboidal epithelium can be found in

- (1) Distal convoluted tubule
- (2) Proximal convoluted tubule
- (3) Bowman's Capsule
- (4) Both (1) and (2)

16. Select the single layered tissue in which cells are tall, slender and their nuclei are present at the base?

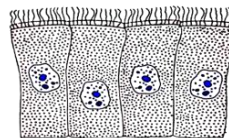
- (1) Squamous epithelium
- (2) Columnar epithelium
- (3) Connective tissue
- (4) Stratified squamous epithelium

17. Identify diagram A and B in the figure below.



- (1) A-simple squamous epithelium
- (2) B-simple cuboidal epithelium
- (3) A-stratified epithelium
- (4) A-simple cuboidal epithelium

18. Where will you find the epithelium in the human body given in the figure below?



- (1) Bowman's capsule of nephron
- (2) PCT
- (3) Fallopian tube
- (4) Skin

19. Which of the following is correct for epithelial tissue?

- (1) It is present only as inner lining
- (2) It is present only as outer lining
- (3) Contains very less intercellular matrix
- (4) All of these

20. Muscle fibres present in blood vessels, stomach and intestine are

- (1) Tapering at both ends
- (2) Branched
- (3) Cylindrical in shape
- (4) Striated

21. In these tissue, cells are enclosed in lacunae:

- (1) Cartilage
- (2) Bone tissue
- (3) Both (1) and (2)
- (4) Muscular tissue

22. Tendon and ligament are example of

- (1) Dense regular connective tissue
- (2) Dense irregular connective tissue
- (3) Loose connective tissue
- (4) Specialised connective tissue

23. Collagen fibres are secreted by:

- (1) Fibroblast
- (2) Mast cells
- (3) Histiocyte
- (4) Macrophages

24. Choose the correct option which has all the right statements for bones.

- a. Bones have a hard and non-pliable ground substance
 - b. Matrix of bone is rich in calcium salt and free from collagen fibres
 - c. The bone marrow in some bones is the site of production of blood cells
 - d. Bone is a type of specialised connective tissue
- (1) a, b and c
 - (2) a, c and d
 - (3) a and d only
 - (4) All of these

25. Match column I with column II and select the correct option-

	Column I		Column II
A.	Neuron	I.	An excitable cell
B.	Neuroglia	II.	Is from myelin sheath in PNS
C.	Oligodendrocyte	III.	Mesoderm cells which support neuron
D.	Fibroblast	IV.	Fibre secretion

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

26. Cube like cells with microvilli on their free surface are present in:

- (1) PCT
- (2) Small bronchioles
- (3) Alveoli of lungs
- (4) Fallopian tube

27. Find the incorrect statement

- (1) Basement membrane is cellular layer.
- (2) Epithelial tissue is avascular
- (3) Epithelial tissue means a tissue that grows over another tissue.
- (4) Simple columnar epithelium consists of tall and pillar like cells.

28. Microvilli of epithelium cells

- (1) Increase the surface area
- (2) Protect the cells
- (3) Engulf the foreign matter
- (4) Move a particle from one point to another.

29. Ligament connect:

- (1) Bone to muscles
- (2) Bone to bone
- (3) Muscle to muscle
- (4) Skin to muscle

30. Endothelium lining blood vessel is formed of

- (1) Ciliated epithelium
- (2) Columnar epithelium
- (3) Cuboidal epithelium
- (4) Simple squamous epithelium

31. Tissue is

- (1) A group of similar cells together with their intercellular substances, which perform a specific function
- (2) A single cell with specified functions
- (3) Group of similar cell perform different function
- (4) All of the above

32. Match column-I (type of epithelium) with column-II (Description) and choose the correct option.

	Column-I		Column-II
A.	Squamous	I.	It is composed of a epithelium single-layer of cube-like cell
B.	Cuboidal	II.	Having cilia on their free epithelial surface
C.	Columnar	III.	It is composed of a single epithelial layer of tall and slender cells
D.	Ciliated	IV.	It is made up of a single thin epithelial layer of flattened cells with irregular boundaries

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

33. Small intestine contain:

- (1) Simple squamous epithelium
- (2) Pseudostratified
- (3) Simple cuboidal epithelium
- (4) Simple columnar brush border epithelium

34. Which connective tissue forms support Framework for epithelium?

- (1) Areolar
- (2) Blood
- (3) Cartilage
- (4) Bone

35. Which of the following is most abundant and widely distributed tissue in human body?

- (1) Epithelial tissue
- (2) Connective tissue
- (3) Muscular tissue
- (4) Nervous tissue

SECTION-B

36. Fibroblasts, macrophage and mast cells are seen in
- (1) Epithelial tissue
 - (2) Connective tissue
 - (3) Skeletal muscle tissue
 - (4) Smooth muscle tissue

37. Which of the following is a heterocrine gland?
- (1) Salivary gland
 - (2) Sweat gland
 - (3) Pancreas
 - (4) Thyroid gland

38. Match column I and column II and choose the correct answer-

	Column I		Column II
A.	Squamous	I.	Intestinal gland
B.	Cuboidal	II.	Trachea
C.	Edumanar	III.	Ovary
D.	Ciliated	IV.	Blood vessels.
E.	Pseudo stratified	V.	Bronchioles

	A	B	C	D	E
(1)	IV	III	I	V	II
(2)	I	II	III	IV	V
(3)	II	I	III	V	IV
(4)	III	II	I	IV	V

39. Which of the following is a loose connective tissue?
- (1) Blood
 - (2) Cartilage
 - (3) Bone
 - (4) Areolar

40. Which of the following is a fluid connective tissue?
- (1) Blood
 - (2) Lymph
 - (3) Adipose
 - (4) Both 1 and 2

41. Which of the following is secretion of endocrine gland?
- (1) Ear wax
 - (2) Milk
 - (3) Thyroxine hormone
 - (4) Tears

42. What is the function of Adhering junction?
- (1) Cementing to keep neighbouring cells together
 - (2) Facilitate the cells to communicate with each other.
 - (3) Stop leaking substance across the tissue
 - (4) All of these

43. Which of the following tissue has a free surface?
- (1) Connective tissue
 - (2) Muscular tissue
 - (3) Epithelial tissue
 - (4) Neural tissue

44. Mast cells found in connective tissue secrete.
- (1) Antibodies
 - (2) Histamine
 - (3) Saliva
 - (4) Tears

45. Which one of the following statement is wrong related with transitional epithelium?
- (1) There is no basement membrane.
 - (2) Stretchable cells are present
 - (3) There is no change in shape of cells when epithelium is stretched.
 - (4) Lowermost layer is made up of cube shaped cells

46. Intercalated discs are present in
- (1) Cardiac Muscles
 - (2) Skeletal Muscles
 - (3) Smooth Muscles
 - (4) Visceral Muscles

47. Serotonin is
- (1) Vasodilator
 - (2) Vasoconstrictor
 - (3) Anticoagulant
 - (4) Coagulant

48. Blood consist of
- (1) Plasma only
 - (2) Plasma + WBCs only
 - (3) RBCs + WBCs only
 - (4) Plasma + WBCs + RBCs + Platelets

49. What is the function of Tight junction?

- (1) Protects From bacterial infection
- (2) Stop substances leaking across the tissue.
- (3) Both & (1) and (2)
- (4) Imparts elasticity to the tissue

50. Statement based questions:

Statement I: Cells that produced and secrete fibres are called fibroblasts.

Statement II: Fibroblast are found in all types of connective tissues

- (1) Statement I is correct and II is wrong
- (2) Statement II is correct and I is wrong
- (3) Both statements are correct
- (4) Both statements are wrong

(BOTANY)

Hints and Solution

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| <p>1. (2)
Hydrophilic part of membrane is provided by phosphate group.</p> <p>2. (3)
Bacteria can be classified into two groups on the basis of the differences in the cell envelopes.</p> <p>3. (2)
80S ribosome present in eukaryotes.</p> <p>4. (2)
Naked DNA present in prokaryotes.</p> <p>5. (4)
In some prokaryotes like cyanobacteria, there are other membranous extensions in the cytoplasm called chromatophores which contain pigments and helps in photosynthesis.</p> <p>6. (4)
Glycocalyx provides sticky character to the bacterial cell.</p> <p>7. (4)
Bacterial cells may be motile or non-motile. If motile, they have thin filamentous extensions from their cell wall called flagella.
Besides flagella, Pili and Fimbriae are also surface structures of the bacteria but do not play a role in motility.
Fimbriae helps in attachment.</p> <p>8. (4)
Nuclear envelope absent in prokaryotes.</p> <p>9. (2)
A special membranous structure is the mesosome which is formed by the extensions of plasma membrane into the cell.</p> <p>10. (1)
Cell membrane composition is same in prokaryotes and eukaryotes.</p> <p>11. (1)
Inclusion bodies: Reserve material in prokaryotic cells are stored in the cytoplasm in the form of inclusion bodies. These are not bound by any membrane system and lie free in the cytoplasm.</p> | <p>12. (1)
Gas vacuoles are found in blue green and purple and green photosynthetic bacteria.</p> <p>13. (1)
Endomembrane system not involves peroxisome.</p> <p>14. (4)
While each of the membranous organelles is distinct in terms of its structure and function, many of these are considered together as an endomembrane system because their functions are coordinated.</p> <p>15. (4)
Algae have cell wall, made of cellulose, galactans, mannans and minerals like calcium carbonate.</p> <p>16. (3)
Lignin is present in secondary cell wall.</p> <p>17. (1)
The middle lamella is a layer mainly of calcium pectate which holds or glues the different neighbouring cells together.</p> <p>18. (3)
Plant cell without cell wall is known as protoplast.</p> <p>19. (4)
The cell envelope consists of a tightly bound three layered structure i.e., the outermost glycocalyx followed by the cell wall and then the plasma membrane. Cilia is the eukaryotic feature.</p> <p>20. (2)
The cell envelope consists of a tightly bound three layered structure i.e., the outermost glycocalyx.</p> <p>21. (2)
<i>Mycoplasma</i> is the wall less microorganism.</p> <p>22. (4)
Cell wall not only gives shape to the cell and protects the cell from mechanical damage and infection, it also helps in cell-to-cell interaction and provides barrier to undesirable macromolecules.</p> |
|--|--|

23. (1)
Gas vacuole are found in all of the water bloom forming cyanobacteria and are responsible for buoying them to water surface.
24. (4)
Prokaryotic cells lack membrane bound cell organelles, lack true nucleus and cell division is absent in them.
25. (1)
Protists, fungi, plants and animals are eukaryotes.
26. (4)
Cell compartmentalization basically refers to the way organelles present in the eukaryotic cells live and work in separate areas within cell in order to perform their specific functions more efficiently. All are the features of eukaryotic cells
27. (1)
Animal cells contain another non-membrane bound organelle called centrosome which helps in cell division.
Centriole is absent in plant cells.
In place of centrioles, plant cells have polar caps.
28. (3)
The cytoplasm is the main arena of cellular activities in both the plant and animal cells. Various chemical reactions occur in it to keep the cell in the 'living state'.
29. (4)
An elaborate network of filamentous proteinaceous structures consisting of microtubules, microfilaments and intermediate filaments present in the cytoplasm is collectively referred to as the cytoskeleton.
30. (1)
Lysosomes are membrane bound vesicular structures formed by the process of packaging in the golgi apparatus. The isolated lysosomal vesicles have been found to be very rich in almost all types of hydrolytic enzymes (hydrolases – lipases, proteases, carbohydrases) optimally active at the acidic pH.
31. (1)
Amyloplasts are type of leucoplasts.
Amyloplasts store carbohydrates (starch).
32. (3)
Chloroplast and Mitochondria are semiautonomous cell organelle.
Both have their own DNA and 70 S types of ribosomes.
33. (1)
ER membrane is continuous with nucleus membrane. The outer membrane is continuous with ER, so the space between the inner and outer nuclear membranes is directly connected with the lumen of the ER.
34. (1)
The hydrophobic tails face inward towards one another and the hydrophilic heads face outwards.
35. (2)
Non-polar molecules are lipid soluble.
Neutral solutes may move across the membrane by the process of simple diffusion along the concentration gradient, i.e., from higher concentration to the lower.
36. (2)
ER plays a key role in the modification of proteins and synthesis of lipids.
37. (2)
Robert Brown described Nucleus.
Nucleus as a cell organelle was first described by Robert Brown as early as 1831.
38. (4)
Nuclear matrix is present inside the nucleus. The nuclear matrix or the nucleoplasm contains nucleolus and chromatin.
39. (1)
Nucleolus -It is a site for active ribosomal RNA synthesis.
40. (3)
Centrioles made up of nine evenly spaced peripheral fibrils of tubulin protein.
Each of the peripheral fibril is a triplet.
In centrioles 9 microtubules with 3 subunits (A, B, C) are present on periphery and O (protein hub) is present in center.

- 41. (1)**
The smooth endoplasmic reticulum is the major site for synthesis of lipids. In animal cells lipid-like steroidal hormones are synthesised in SER.
- 42. (2)**
The golgi apparatus principally performs the function of packaging materials, to be delivered either to the intra-cellular targets or secreted outside the cell.
Materials to be packaged in the form of vesicles from the ER fuse with the cis face of the golgi apparatus and move towards the maturing face
- 43. (2)**
Lysosomes-cell organelles is enclosed by a single membrane.
Chloroplast, Nucleus, Mitochondria-Double membrane cell organelles.
- 44. (1)**
(Endoplasmic reticulum → Golgi bodies → Lysosomes).
- 45. (2)**
Lysosomes and vacuoles cell organelles does not contain DNA.
Mitochondria- The matrix also possesses single circular DNA molecule, a few RNA molecules, ribosomes.
70 S ribosomes are the components required for the synthesis of proteins.
Chloroplast- It also contains small, double stranded circular DNA molecules and ribosomes.
- 46. (4)**
The stroma of the chloroplast contains enzymes required for the synthesis of carbohydrates and proteins.
- 47. (1)**
'S' (Svedberg's Unit) stands for the sedimentation coefficient; it is indirectly a measure of density and size.
- 48. (4)**
Infolding of plasma membrane in bacteria are called-mesosomes.
- 49. (2)**
Camillo Golgi-Golgi apparatus.
- 50. (2)**
The non-polar tail of saturated hydrocarbons is protected from the aqueous environment.

(ZOOLOGY)

Hint and Solutions

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| <p>1. (3)
Cardiac muscles are involuntary and striated; Muscles present in visceral organs are involuntary and smooth and limb muscles/skeletal muscles are striated and voluntary.</p> <p>2. (4)
Given structure is of unicellular mucus secreting gland which is found in intestine.</p> <p>3. (3)
In most of the tubular part of nephron, simple cuboidal epithelium is present. As it helps in the absorption of different substances from filtrate.</p> <p>4. (1)
Gap junctions help in transport of different substances between adjoining cells and help in rapid transfer of ions, small molecules and large molecules.</p> <p>5. (4)
The smooth muscle fibres taper at both ends and do not show striations and involuntary.</p> <p>6. (3)
Neural tissue have two types of cells one is excitable cell (neuron) and another is supporting cells (neuroglial cells).</p> <p>7. (4)
Blood is specialised connective tissue which has water rich/fluidic matrix while adipose and areolar tissues are typical form of connective tissue and have semi fluid or jelly like matrix which is rich in mucopolysaccharide.</p> <p>8. (3)
Osteocytes are bone cells.</p> <p>9. (3)
Fibres and fibroblast are compactly packed in every type of dense connective tissue; the only difference between two subtypes is regular and irregular arrangement of cells, fibres and matrix.</p> <p>10. (1)
All glandular structures are modified epithelial tissue which perform synthesis and secretion of specific chemicals.</p> | <p>11. (4)
Epithelium with microvilli on free surface is termed as brushbordered epithelium.</p> <p>12. (1)
Most of the parts of digestive tract (stomach to rectum) are lined with some kind of modification of columnar epithelium</p> <p>13. (2)
Cuboidal or columnar epithelium which is specialised for secretion are called glandular epithelium</p> <p>14. (3)
Salivary glands and islets of Langerhans pancreas both are examples of multicellular glands.</p> <p>15. (4)
Cuboidal epithelium is found in ducts of glands and tubular parts of nephrons in kidney.</p> <p>16. (2)
All mentioned features are of simple columnar epithelium.</p> <p>17. (4)
Given figures A is simple cuboidal epithelium and B is simple columnar epithelium.</p> <p>18. (3)
Cilia help in transport of substance in particular direction like gamete transport in female reproductive tract and mucus in respiratory tract</p> <p>19. (3)
Epithelial tissue contain very less intercellular matrix tissue has a free surface, which faces either a body fluid or the outside environment.</p> <p>20. (1)
NCERT 11, Page No. -105
The smooth muscle fibres taper at both ends (fusiform) and do not show striations. Cell junctions hold them together and they are bundled together in a connective tissue sheath. The wall of internal organs such as the blood vessels, stomach and intestine contains this type of muscle tissue.</p> |
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21. (3)
NCERT 11, Page No. -104
The bone cells (osteocytes) are present in the spaces called lacunae. Cells of the Cartilage (chondrocytes) are enclosed in small cavities within the matrix secreted by them called lacunae.
22. (1)
NCERT 11, Page No. -103
In the dense regular connective tissues, the collagen fibres are present in rows between many parallel bundles of fibres. Tendons, which attach skeletal muscles to bones and ligaments which attach one bone to another are examples of this.
23. (1)
NCERT 11, Page No. -103
Fibroblasts bone is a type of specialised connective tissue. Cells that produce and secrete fibres.
24. (2)
NCERT 11, Page No. -104
Bones have a hard and non-pliable ground substance rich in calcium salts and collagen fibres which give bone its strength. It is the main tissue that provides structural frame to the body. Bones support and protect softer tissues and organs.
25. (3)
The majority of the respiratory tree, from the nasal cavity to the bronchi, is lined by pseudostratified columnar ciliated epithelium
26. (1)
NCERT-11, Page No. 101
27. (1)
Basement membrane is made up of glycoproteins, collagen fibres, mucopolysaccharides.
28. (1)
Microvilli on the surface of epithelial cells such as those lining the intestine increase the cell's surface area and thus facilitate the absorption of ingested food and water molecules
29. (2)
NCERT-11, Page No. 103
30. (4)
The endothelium of blood vessels is made up of simple squamous epithelium.
31. (1)
NCERT-11, Page No. 100
32. (1)
NCERT-11, Page No. 101
33. (4)
The primary function of the small intestine is the absorption of nutrients and minerals in food. The inner wall of the small intestine is lined by simple columnar epithelial tissue. Each cell has finger-like projections called microvilli. The function of the microvilli is to increase the surface area for nutrient absorption.
34. (1)
It is the areolar tissue that serves as a support Framework for epithelium. Adipose tissue helps in storing fat.
35. (2)
NCERT-11, Page No. 102
36. (2)
NCERT-11, Page No. 103
37. (3)
Heterocrine glands are the glands which function as both exocrine gland and endocrine gland. These include the pancreas and the gonads.
38. (1)
Refer to NCERT Pops. 103.
39. (4)
NCERT-11, Page No. 103
40. (4)
Blood and Lymph are fluid connective tissue.
41. (3)
NCERT-11, Page No. 102

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| <p>42. (1)
NCERT-11, Page No. 102</p> <p>43. (3)
NCERT-11, Page No. 101</p> <p>44. (2)
Mast cells synthesise and secrete histamine</p> <p>45. (3)
There is change in of cell shape during stretching of transitional epithelium.</p> <p>46. (1)
Intercalated disc are located at branching points of cardiac muscle fibres and rich in gap junctions.</p> | <p>47. (2)
Serotonin or 5 hydroxytryptamine is a vasoconstrictor released by mast cells.</p> <p>48. (4)
Blood is made of plasma and blood cells (erythrocytes, leucocytes and platelets.)</p> <p>49. (2)
Refer to NCERT Pg no. 102.</p> <p>50. (1)
Fibroblast cells are absent in vascular connective tissues like blood and lymph</p> |
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