Shagaf

Cell Biology Mid

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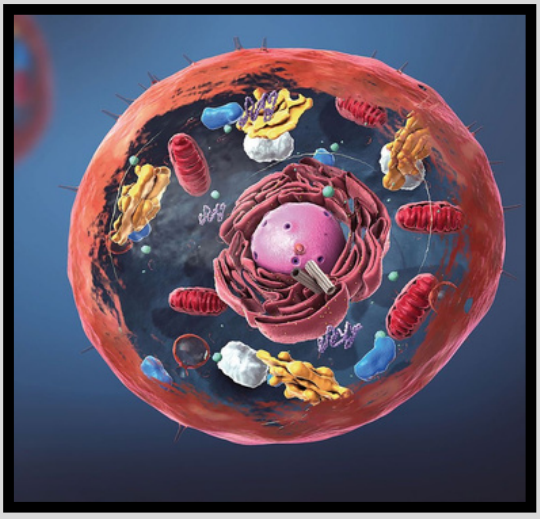

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1. **which of the following is not considered as 2nd messengers are:**

A) cAMP
B) cGMP
C) Calcium ions
D) Inositol triphosphate (IP3)
E). ATP

Answer: E). ATP

2. 10 angstrom equals?

A) 1 millimeter (mm)
B) 1 micrometer (um)
C) 1 nanometer(nm)
D) 10 nanometer(nm)

Answer: C) 1 nanometer(nm)

3. It's ECM consistency may be jelly like:

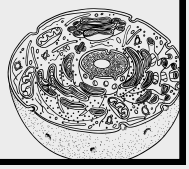
A) cartilage
B) bone
C) blood
D) connective tissue proper

Answer: D) connective tissue proper

4. All of the following are correct about the difference between intrinsic and extrinsic proteins, except:

A) Intrinsic proteins span the lipid bilayer, while extrinsic proteins are attached to one surface of the membrane.
B) Intrinsic proteins can move laterally within the bilayer, whereas extrinsic proteins are fixed in place.
C) Extrinsic proteins are loosely attached to the membrane surface, while intrinsic proteins are embedded within the lipid bilayer.
D) Intrinsic proteins can act as channels for the transport of molecules, while extrinsic proteins typically act as receptors or enzymes.

Answer: B) Intrinsic proteins can move laterally within the bilayer, whereas extrinsic proteins are fixed in place.



5. stain gives the tissue new color different from that of the original stain, this Phenomenon called?

A) Toluidine blue
B) Mast cells
C) Leishman stain
D) metachromasia

Answer: D) metachromasia

6. In the centrifugation ,The first cell organelle separated followed by different cell organelles:

A) Nuclei B) mitochondria
C) lysosome D) ribosome

Answer: A) Nuclei

7. One of the following is not correct about Phospholipid bilayer components, except:

A) Outer phosphate heads are polar and hydrophilic.
B) Inner fatty acid tails are polar and hydrophilic.
C) The bilayer forms a rigid, inflexible structure.
D) Cholesterol molecules are absent from the bilayer.

Answer: A) Outer phosphate heads are polar and hydrophilic.

8. Which of the following is not true about Hematoxylin and Eosin stains:

A) Hematoxylin is blue dye
B) Hematoxylin has negative charge
C) Eosin has negative charge
D) Eosin stains mitochondria

Answer: B) Hematoxylin has negative charge

9. The proper solution used in the fixation step for electron microscopy (EM):

A. Osmium tetroxide
B. Osmium dioxide
C. Osmium ioxide
D. Osmium trioxide

Answer: A. Osmium tetroxide

10. The Spiny fibrous cytoplasmic protein is:

A. Actin
B. Tubulin
C. Clathrin
D. Keratin

Answer: C. Clathrin

11. Here are four options regarding hematoxylin stain:

A. It's used to stain acidophile structures with blue color.

B. It's used to stain basophile structures with blue color.

C. It's used to stain basophile structures with pink color.

D. It's used to stain acidophile structures with pink color.

Answer: B. It's used to stain basophile structures with blue color.

12. which stain exhibits the phenomenon of metachromasia:

A. Hematoxylin

B. Eosin

C. Toluidine blue

D. Safranin

Answer: C. Toluidine blue

13. One of the folowing is Correct about Silver Stain :

A. It stains nerve cells with brown color.

B. It stains collagen fibers with yellow color.

C. It stains bacteria with blue color.

D. It stains nerve cells with black color.

Answer: A. It stains nerve cells with brown color.

14. The ability to proliferate indifnitely is the defenton of:

A. Transformed cell line

B. Immortalized cell line

C. Primary cell line

D. Stem cell line

Answer: B. Immortalized cell line

15. The area in which genetic material is found and scattered:

A. Nucleus

B. Nucleoid

C. Ribosome

D. Cytoplasm

Answer: B. Nucleoid

16. The resolution power of the healthy naked eye:

A. 0.1 millimeter

B. 0.2 millimeter

C. 0.5 millimeter

D. 1 millimeter

Answer:B. 0.2 millimeter

17. the type of microscope that uses two beams of light:

A. Light microscope
B. Darkfield microscope
C. Differential interference contrast (DIC) microscope
D. Fluorescence microscope

Answer: C. Differential interference contrast (DIC) microscope

18. leaky gut sgndrome is caused by defective in:

A. Tight junctions
B. Adherens junctions
C. Occluding junctions
D. Gap junctions

Answer: C. Occluding junctions

19. Defective in Hemi desmosome Junction Can Cause :

A. Pemphigus vulgaris
B. Bullous pemphigoid
C. Ehlers-Danlos syndrome
D. Epidermolysis bullosa

Answer: B. Bullous pemphigoid

20. Ion channel receptors is found in:

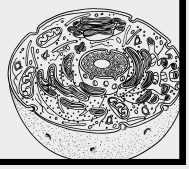
A. Presynaptic membrane in the nervous system
B. Postsynaptic membrane in the nervous system
C. Cell membrane of red blood cells
D. Endoplasmic reticulum

Answer: B. Postsynaptic membrane in the nervous system

21. One of the following is charaderistic of plasma membrane is:

A. It's a single electron-dense line about 8-10 nm in thickness under low magnification in electron microscopy.
B. It's a double electron-dense line about 10-15 nm in thickness under low magnification in electron microscopy.
C. It's a rigid structure with a thickness of about 5 nm in low magnification in electron microscopy.
D. It's composed of three distinct layers visible under low magnification in electron microscopy.

Answer: A. It's a single electron-dense line about 8-10 nm in thickness under low magnification in electron microscopy.



من هُنا تبدأ الأسئلة التي استعنا -بعد اللّٰه- في كتابتها على الـ (AI)

Lecture 1 (introduction to cell bio)

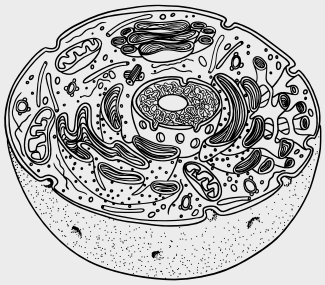
1 What is the study of normal cells' structures and functions called?
a) Histology
b) Cell Biology
c) Microscopy
d) Genetics
e) Biochemistry
Answer: b) Cell Biology

2 What is the smallest unit of a living body?
a) Tissue
b) Organ
c) Cell
d) System
e) Molecule
Answer: c) Cell

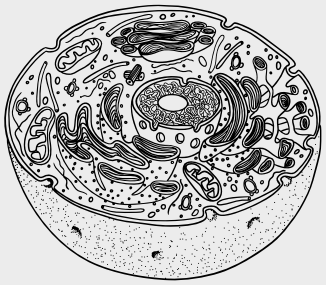
3 What is the range of size of cells in microns?
a) 1-10 b) 4-200
c) 10-100 d) 1-1000
e) 0.1-1
Answer: b) 4-200

4 What is the study of tissues of the body and how they form organs called?
a) Histology
b) Embryology
c) Anatomy
d) Physiology
e) Pathology
Answer: a) Histology

5 What is the method of studying cell biology that involves isolating cells to study under controlled conditions?
a) Cell fractionation
b) Chromatography
c) Cell culture
d) Electrophoresis
e) Microscopy
Answer: c) Cell culture



6 What is the type of cell that lacks a nucleus and has no membrane-bound organelles?
a) Eukaryote
b) Prokaryote
c) Stem cell
d) Nerve cell
e) Muscle cell
Answer: b) Prokaryote
7 What is the non-cellular component that fills spaces between cells and is secreted by cells of the tissue called?
a) Extracellular matrix
b) Cytoplasm
c) Nucleus
d) Mitochondria
e) Lysosome
Answer: a) Extracellular matrix
8 What is the function of the basement membrane?
a) To provide mechanical support to myofibers b) To act as a barrier between epithelial cells and connective tissue
c) To participate in filtration of blood in the kidney
d) To regulate cell growth and division
e) All of the above
Answer: e) All of the above
9 What is the organization of the human body, from smallest to largest?
a) Cells, tissues, organs, systems
b) Systems, organs, tissues, cells
c) Organs, systems, tissues, cells
d) Tissues, cells, organs, systems
e) Molecules, cells, tissues, organs, systems
Answer: a) Cells, tissues, organs, systems
10 What is the type of microscopy that uses visible light source and condenser lens to send light through the object?
a) Phase contrast microscopy
b) Fluorescence microscopy
c) Light microscopy
d) Electron microscopy
e) Confocal microscopy
Answer: c) Light microscopy



11 What is the resolution power of the electron microscope?

a) 0.2 millimeter

b) 0.2 micrometer

c) 0.2 nanometer

d) 10 angstrom

e) 1 micrometer

Answer: c) 0.2 nanometer

12 What is the type of electron microscopy that shows the details of internal structures of cells?

a) Scanning electron microscopy

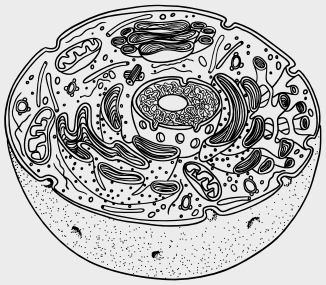
b) Transmission electron microscopy

c) Fluorescence microscopy

d) Confocal microscopy

e) Dark field microscopy

Answer: b) Transmission electron microscopy



Lecture 2 (Microtechniques)

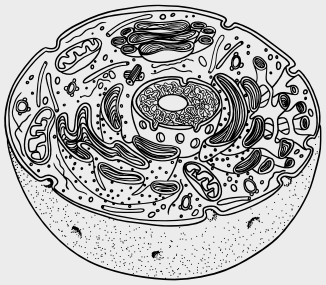
1 What is the purpose of fixation in tissue preparation?
a) To preserve the morphology of the tissue
b) To remove water from the tissue
c) To add stains to the tissue
d) To section the tissue
e) To embed the tissue in paraffin wax
Answer: a) To preserve the morphology of the tissue

2 Which of the following is a type of microtechnique used for light microscopy?
a) Paraffin technique
b) Freezing technique
c) Electron microscopy
d) Fluorescence microscopy
e) Confocal microscopy
Answer: a) Paraffin technique

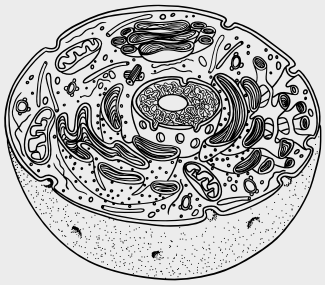
3 What is the function of dehydration in tissue preparation?
a) To remove water from the tissue
b) To add stains to the tissue
c) To preserve the morphology of the tissue
d) To section the tissue
e) To embed the tissue in paraffin wax
Answer: a) To remove water from the tissue

4 What is the purpose of clearing in tissue preparation?
a) To remove water from the tissue
b) To make the tissue transparent
c) To add stains to the tissue
d) To preserve the morphology of the tissue
e) To section the tissue
Answer: b) To make the tissue transparent

5 What is the function of impregnation in tissue preparation?
a) To remove water from the tissue
b) To add stains to the tissue
c) To preserve the morphology of the tissue
d) To infiltrate the tissue with paraffin wax
e) To section the tissue
Answer: d) To infiltrate the tissue with paraffin wax



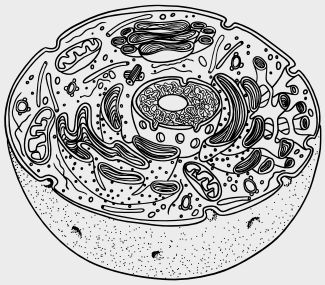
6 What is the purpose of embedding in tissue preparation?
a) To remove water from the tissue
b) To add stains to the tissue
c) To preserve the morphology of the tissue
d) To infiltrate the tissue with paraffin wax
e) To create a paraffin block
Answer: e) To create a paraffin block
7 What is the function of sectioning in tissue preparation?
a) To remove water from the tissue
b) To add stains to the tissue
c) To preserve the morphology of the tissue
d) To cut the tissue into thin slices
e) To embed the tissue in paraffin wax
Answer: d) To cut the tissue into thin slices
8 What is the purpose of mounting in tissue preparation?
a) To remove water from the tissue
b) To add stains to the tissue
c) To preserve the morphology of the tissue
d) To attach the tissue section to a glass slide
e) To embed the tissue in paraffin wax
Answer: d) To attach the tissue section to a glass slide
9 What is the function of staining in tissue preparation?
a) To remove water from the tissue b) To add colors to the tissue
c) To preserve the morphology of the tissue
d) To section the tissue
e) To embed the tissue in paraffin wax
Answer: b) To add colors to the tissue
10 What is the purpose of H&E staining?
a) To stain specific structures in the tissue
b) To visualize the morphology of the tissue
c) To identify specific cells in the tissue
d) To diagnose diseases
e) To study the function of cells
Answer: b) To visualize the morphology of the tissue
11 What is the function of special stains in tissue preparation?
a) To stain specific structures in the tissue
b) To visualize the morphology of the tissue
c) To identify specific cells in the tissue
d) To diagnose diseases
e) To study the function of cells
Answer: a) To stain specific structures in the tissue



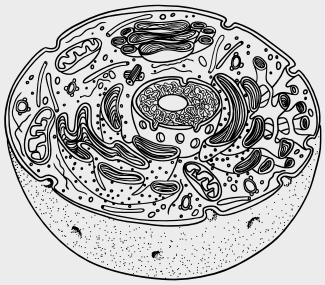
12 What is the purpose of immunohistochemistry in tissue preparation?
a) To stain specific structures in the tissue
b) To visualize the morphology of the tissue
c) To identify specific cells in the tissue
d) To diagnose diseases
e) To study the function of cells
Answer: d) To diagnose diseases

Lecture 3 (cell membrane)

1. What is the outermost layer of the cell that surrounds the protoplasm?
a) Cytoplasm
b) Nucleus
c) Cell membrane
d) Cytoskeleton
e) Protoplasm
Answer: c) Cell membrane
2. What is the function of the cell membrane?
a) To provide structure to the cell
b) To regulate what enters and leaves the cell
c) To produce energy for the cell
d) To synthesize proteins
e) To store genetic information
Answer: b) To regulate what enters and leaves the cell
3. What is the fluid-mosaic model of the cell membrane?
a) A rigid structure that surrounds the cell
b) A fluid structure that surrounds the cell
c) A model that describes the nucleus
d) A model that describes the cytoskeleton
e) A model that describes the mitochondria
Answer: b) A fluid structure that surrounds the cell
4. What are the two types of proteins found in the cell membrane?
a) Integral and peripheral proteins
b) Structural and functional proteins
c) Lipid and carbohydrate proteins
d) Hydrophobic and hydrophilic proteins
e) Passive and active proteins
Answer: a) Integral and peripheral proteins



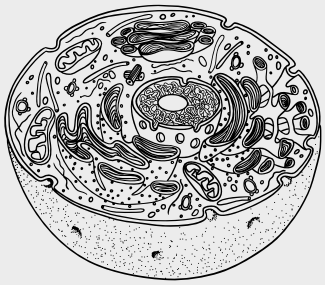
5. What is the function of cholesterol in the cell membrane?
a) To provide structure to the cell membrane
b) To regulate what enters and leaves the cell
c) To fill gaps between fatty acid tails
d) To synthesize proteins
e) To store genetic information
Answer: c) To fill gaps between fatty acid tails
6. What is the process by which cells take in substances from outside the cell?
a) Exocytosis
b) Endocytosis
c) Phagocytosis
d) Pinocytosis
e) Receptor-mediated endocytosis
Answer: b) Endocytosis
7. What is the process by which cells release substances outside the cell?
a) Endocytosis
b) Exocytosis
c) Phagocytosis
d) Pinocytosis
e) Receptor-mediated endocytosis
Answer: b) Exocytosis
8. What is the function of microvilli in the cell membrane?
a) To increase the surface area of the cell
b) To decrease the surface area of the cell
c) To regulate what enters and leaves the cell
d) To synthesize proteins
e) To store genetic information
Answer: a) To increase the surface area of the cell
9. What is the function of cilia in the cell membrane?
a) To increase the surface area of the cell
b) To move substances along the cell surface
c) To regulate what enters and leaves the cell
d) To synthesize proteins
e) To store genetic information
Answer: b) To move substances along the cell surface
10. What is the function of flagella in the cell membrane?
a) To increase the surface area of the cell
b) To move substances along the cell surface
c) To regulate what enters and leaves the cell
d) To synthesize proteins
e) To store genetic information
Answer: b) To move substances along the cell surface



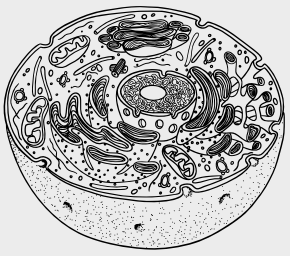
11. What is the function of cell junctions in the cell membrane?
a) To connect adjacent cells together
b) To regulate what enters and leaves the cell
c) To synthesize proteins
d) To store genetic information
e) To increase the surface area of the cell
Answer: a) To connect adjacent cells together
12. What is the process by which the cell membrane is recycled?
a) Endocytosis
b) Exocytosis
c) Phagocytosis
d) Pinocytosis
e) Membrane trafficking
Answer: e) Membrane trafficking

Lecture 4 (cell junction)

1. What is the structural and functional unit of life?
a) Cell membrane
b) Nucleus
c) Cytoplasm
d) Cell
e) Protoplasm
Answer: d) Cell
2. What surrounds the protoplasm of a cell?
a) Cell wall
b) Cell membrane
c) Cytoplasm
d) Nucleus
e) Mitochondria
Answer: b) Cell membrane
3. What is the function of the cell membrane?
a) To provide structure to the cell
b) To regulate what enters and leaves the cell
c) To produce energy for the cell
d) To synthesize proteins
e) To store genetic information
Answer: b) To regulate what enters and leaves the cell



4. What is the fluid-mosaic model of the cell membrane composed of?
a) Only lipids
b) Only proteins
c) Lipids and proteins
d) Carbohydrates and lipids
e) Proteins and carbohydrates
Answer: c) Lipids and proteins
5. What is the function of cholesterol in the cell membrane?
a) To provide structure to the cell membrane
b) To regulate what enters and leaves the cell
c) To fill gaps between fatty acid tails d) To synthesize proteins
e) To store genetic information
Answer: c) To fill gaps between fatty acid tails
6. What is the process by which cells take in substances from outside the cell?
a) Exocytosis
b) Endocytosis
c) Phagocytosis
d) Pinocytosis
e) Receptor-mediated endocytosis
Answer: b) Endocytosis
7. What is the process by which cells release substances outside the cell? a) Endocytosis
b) Exocytosis
c) Phagocytosis
d) Pinocytosis
e) Receptor-mediated endocytosis
Answer: b) Exocytosis
8. What is the function of microvilli in the cell membrane?
a) To increase the surface area of the cell
b) To decrease the surface area of the cell
c) To regulate what enters and leaves the cell
d) To synthesize proteins
e) To store genetic information
Answer: a) To increase the surface area of the cell
9. What is the function of cilia in the cell membrane?
a) To increase the surface area of the cell
b) To move substances along the cell surface
c) To regulate what enters and leaves the cell d) To synthesize proteins
e) To store genetic information
Answer: b) To move substances along the cell surface



10. What is the function of flagella in the cell membrane?
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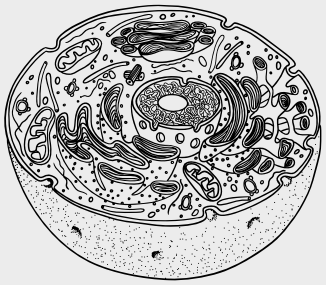
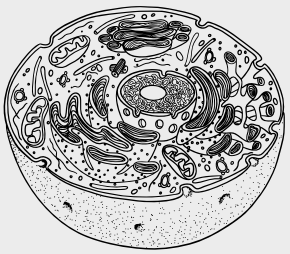
b) To move substances along the cell surface
c) To regulate what enters and leaves the cell
d) To synthesize proteins
e) To store genetic information
Answer: b) To move substances along the cell surface
11. What is the function of cell junctions in the cell membrane?
a) To connect adjacent cells together
b) To regulate what enters and leaves the cell
c) To synthesize proteins
d) To store genetic information
e) To increase the surface area of the cell
Answer: a) To connect adjacent cells together
12. What is the process by which the cell membrane is recycled?
a) Endocytosis
b) Exocytosis
c) Phagocytosis
d) Pinocytosis
e) Membrane trafficking
Answer: e) Membrane trafficking

Lecture 5 (cell communication)

1. What is the main function of cell-cell adhesion molecules (CAMs)?
a) To regulate cell growth and division
b) To connect cells to the extracellular matrix
c) To facilitate cell-cell communication
d) To recognize and respond to pathogens
e) To maintain tissue structure and organization
Answer: e) To maintain tissue structure and organization
2. Which of the following is a type of cell-cell adhesion molecule?
a) Integrin
b) Cadherin
c) Selectin
d) All of the above
e) None of the above
Answer: d) All of the above



3. What is the function of tight junctions in epithelial cells?
a) To allow for the exchange of molecules between cells
b) To provide mechanical support to the tissue
c) To prevent the passage of molecules between cells
d) To regulate cell growth and division
e) To recognize and respond to pathogens
Answer: c) To prevent the passage of molecules between cells
4. Which of the following is a characteristic of anchoring junctions?
a) They allow for the exchange of molecules between cells
b) They provide mechanical support to the tissue
c) They are involved in cell signaling pathways
d) They are found only in epithelial cells
e) They are involved in the immune response
Answer: b) They provide mechanical support to the tissue
5. What is the function of gap junctions in cardiac muscle cells?
a) To allow for the exchange of molecules between cells
b) To provide mechanical support to the tissue
c) To regulate cell growth and division
d) To facilitate the transmission of electrical signals
e) To recognize and respond to pathogens
Answer: d) To facilitate the transmission of electrical signals
6. Which of the following is a type of anchoring junction?
a) Desmosome
b) Hemidesmosome
c) Adherens junction
d) All of the above
e) None of the above
Answer: d) All of the above
7. What is the function of the cytoskeleton in cell-cell adhesion?
a) To provide mechanical support to the cell
b) To regulate cell growth and division
c) To facilitate cell-cell communication
d) To recognize and respond to pathogens
e) To anchor cells to the extracellular matrix
Answer: e) To anchor cells to the extracellular matrix
8. Which of the following is a consequence of defective tight junctions?
a) Leaky gut syndrome
b) Cancer
c) Inflammatory bowel disease
d) All of the above
e) None of the above
Answer: d) All of the above



9. What is the function of integrins in cell-matrix adhesion?
a) To recognize and respond to pathogens
b) To regulate cell growth and division
c) To facilitate cell-cell communication
d) To anchor cells to the extracellular matrix
e) To provide mechanical support to the tissue
Answer: d) To anchor cells to the extracellular matrix
10. Which of the following is a type of cell-matrix adhesion molecule?
a) Cadherin
b) Selectin
c) Integrin
d) All of the above
e) None of the above
Answer: c) Integrin
11. What is the function of laminin in cell-matrix adhesion?
a) To recognize and respond to pathogens
b) To regulate cell growth and division
c) To facilitate cell-cell communication
d) To anchor cells to the extracellular matrix
e) To provide mechanical support to the tissue
Answer: d) To anchor cells to the extracellular matrix
12. Which of the following is a consequence of defective cell-cell adhesion?
a) Cancer
b) Inflammatory bowel disease
c) Leaky gut syndrome
d) All of the above
e) None of the above
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