

Past Papers

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



## MID – Lecture 1 to 4

# Cytology

﴿ وَإِن تَتَوَلَّوْا يَسْتَبَدِلْ قَوْمًا غَيْرَكُمْ ثُمَّ لَا يَكُونُوا أَمْثَلَكُمْ ﴾

اللهم استعملنا ولا تستبدلنا

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First, we will start with (23) past Qs

then there will be (14) test bank Qs

(all Qs are by default past unless  
specified to be test bank)

Q1 :Which of the following lipids is found concentrated in lipid rafts in animal cell plasma membrane?

A- Cholesterol.

B- Phosphatidylcholine.

C- Phosphatidylserine.

D- Phosphatidylethanolamine.

E- Phosphatidylinositol.

Answer : A

Q2 : Which of the following is not a model organism for laboratory studies?

A- Rats

B- *Drosophila melanogaster*

C- *Homo sapiens*

D- *Escherichia coli*

E- *Caenorhabditis elegans*

Answer : C

Q3: What kind of membrane protein penetrates the hydrophobic part of the lipid bilayer?

A- Integral protein.

B- Lipid-anchored protein.

C- Peripheral proteins.

D- Phosphatidylcholine.

E- Galactocerebroside.

Answer: A

Q4: They are more gelated and highly ordered than the surrounding more fluid and disordered regions in membranes. They contain higher concentrations of sphingolipids and cholesterol and certain proteins become concentrated within them. What are they?

- A- lipid domains
- B- dense bilayers
- C- lipid islands
- D- collections
- E- lipid rafts

Answer : E

Q5 :What kind of membrane protein is found entirely outside the bilayer on either the extracellular or cytoplasmic surface? These proteins are covalently linked to a membrane lipid situated within the bilayer.

- A) lipid-anchored protein
- B) integral protein
- C) peripheral proteins
- D) transmembrane
- E) carbohydrate-anchored protein

Answer : A

Q6: Which of the following does represent the most likely secretory pathway for a protein after it has been completely synthesized?

- A. SER → Golgi → secretory vesicle → environment
- B. cytoplasm → RER → Golgi → secretory vesicle → environment
- C. RER → Golgi → SER → cytoplasm → environment
- D. RER → secretory vesicle → Golgi → environment
- E. RER → Golgi → secretory vesicle → environment

Answer : E



Q7 :What does appear to be the purpose of chaperones?

- A. They recognize and bind to unfolded or misfolded DNAs and help them attain their native structure
- B. They transport secretory proteins into secretory vesicles
- C. They recognize and bind to unfolded or misfolded proteins and help them attain their native structure
- D. They recognize and bind to unfolded or misfolded RNAs and help them attain their native structure.
- E. They recognize and bind unfolded or misfolded carbohydrates and help them lose their native shape.

Answer : C

Q8 : Type II single-domain transmembrane proteins have their N-termini at the \_\_\_\_\_ side when they are attached to the ER membrane.

- A) ER lumen
- B) Extracellular
- C) Cytoplasmic
- D) Golgi lumen
- E) No enough information to decide

Answer : C

Q9 : What are the building blocks of a phosphoglycerides, namely phosphatidic acid?

A) glycerol + 3 fatty acids

B) glycerol + 1 phosphate group + 2 fatty acid chains

C) glycerol + 1 phosphate group

D) glycerol + 2 phosphate groups + 1 fatty acid chains

E) glycerol + 1 phosphate group + 3 fatty acid chains

Answer : B

Q10 :With what structure is the outer membrane of the nuclear envelope continuous?

- A. RER
- B. SER
- C. Golgi complex
- D. the spindle
- E. the plasma membrane

Answer : A

Q11 : What components below are selected for transport by vesicles originating in the Golgi complex?

- A) Lysosomal proteins
- B) Proteins required to target the vesicle to an acceptor membrane
- C) Secretory proteins
- D) Proteins required to dock the vesicle to an acceptor membrane
- E) All of the options are correct.

Answer : E

Q12 : Where are the multiple units of quaternary proteins assembled?

- A. ER lumen
- B. Mitochondria
- C. Cis-Golgi
- D. Trans-Golgi network
- E. ERGIC

Answer : A

Q13 : N-glycosylation \_\_\_\_\_ while O-glycosylation \_\_\_\_\_ in the Golgi apparatus.

- A. starts; starts
- B. starts; continues
- C. continues; starts
- D. continues; continues
- E. None of the above is correct

Answer : C

Q14 : On which of the following intracellular locations does clathrin organize a coat and form secretory vesicles?

- A. endoplasmic network
- B. trans-Golgi complex
- C. lysosomes
- D. regulated secretory vesicles
- E. inner membrane of mitochondria

Answer : B



Q15 : What is probably the single, most important distinction between prokaryotes and eukaryotes?

- A- The existence of the Golgi complex.
- B- The separation of the genetic material from the surrounding cytoplasm.
- C- The existence of ribosomes.
- D- The centrioles.
- E- The lysosomes and peroxisomes.

Answer : B

Q16: LDL extracellular membrane receptors usually have the following path in receptor-mediated endocytosis:

- A) Outer plasma membrane side → inner side of clathrin-coated vesicle → inner side of late endosome → inner side of recycling endosome → back to plasma membrane
- B) Outer plasma membrane side → outer side of clathrin-coated vesicle → inner side of early endosome → inner side of recycling endosome → back to plasma membrane
- C) Outer plasma membrane side → inner side of clathrin-coated vesicle → outer side of late endosome → inner side of recycling endosome → back to plasma membrane
- D) Outer plasma membrane side → inner side of clathrin-coated vesicle → inner side of early endosome → inner side of recycling endosome → back to plasma membrane
- E) Outer plasma membrane side → outer side of clathrin-coated vesicle → inner side of late endosome → inner side of lysosome

Answer : D

Q17 : What effect does the binding of the SRP to the growing polypeptide chain and the ribosome have on protein synthesis?

- A) Protein synthesis ceases temporarily.
- B) The complex is translocated to the ER membrane.
- C) Protein synthesis accelerates.
- D) The ribosome dissociates.
- E) Protein synthesis is terminated.

Answer : B

Q18 : Once an organelle to be destroyed, like a mitochondrion, has been surrounded with a double membrane, what is the name of the structure that has been produced?

- A) bacteriophage
- B) autophagosome
- C) phagosome
- D) phagolysosome
- E) macrophage

Answer : B

Q19 : What is the molecular tag of lysosomal enzymes?

- A) Glucose -6-p
- B) RGD
- C) Mannose-6-P
- D) Glucose-N-acetyl-P
- E) KDEL

Answer : C

Q20 : Which of the following enzymes are typically found in lysosomes?

- A) ligases
- B) oxidoreductases
- C) transferases
- D) hydrolytic enzymes (acid hydrolases)
- E) catalase

Answer : D

Q21 : What are the functional categories of SNAREs?

- A. V\_ SNAREs, t\_ SNAREs
- B. V\_ SNAREs, g\_ SNAREs
- C. V\_ SNAREs, er\_ SNAREs
- D. Er\_ SNAREs, g\_ SNAREs
- E. None of the above

Answer : A

Q22 : When a protein fails to attain its native structure in the ER lumen, a protein portion is attached to it to get destroyed in the cytoplasm. What is the name of this portion?

- A. Ubiquitin
- B. transferrin
- C. opsonin
- D. chaperonin
- E. complexin

Answer : A



Q23 : The process of membrane fusion and subsequent content secretion is called \_\_\_\_\_ and is sometimes triggered by the influx of \_\_\_\_\_.

- A. Exocytosis, K<sup>+</sup> ions
- B. Exocytosis, Ca<sup>2+</sup> ions
- C. Endocytosis, Ca<sup>2+</sup> ions
- D. Endocytosis, K<sup>+</sup> ions
- E. Secretion, K<sup>+</sup> ions

Answer : B

# Test bank Qs

Q24) In cell fractionation various components of cells including its organelles can be isolated in different layers depending upon \_\_\_\_\_?

- A) Their physical properties like size
- B) Their physical properties like Weight
- C) Their physical properties like Charge
- D) Their physical properties like Color
- E) Both A and B is Correct

Answer : E

Q25) What is Glycocalyx?

- A) Oligosaccharide part of Glycolipids and Glycoproteins
- B) Glycoproteins and Glycolipids
- C) Mucopolysaccharides attached to cell wall
- D) None of These

Answer : A

Q26 ) Which of the following correctly classifies the location of sphingomyelin and inositol in the plasma membrane?

- A) Sphingomyelin (inner leaflet ), Inositol (outer leaflet )
- B) Sphingomyelin (outer leaflet ), Inositol (inner leaflet )
- C) Sphingomyelin (outer leaflet ), Inositol (outer leaflet )
- D) Sphingomyelin (inner leaflet ), Inositol (inner leaflet )

Answer : B

Q27 ) Which of the following is NOT true of lipid rafts?

- A) They are less fluid than the surrounding membrane
- B) Do not assist in transporting materials inside the cell
- C) They contain a higher concentration of cholesterol than the surrounding membrane
- D) contain proteins anchored in a unique way
- E) play a role in signaling within the cell

Answer : B

Q28) Which statement is NOT true regarding membrane proteins?

- A) They can have a single transmembrane domain.
- B) They can associate with nucleic acids.
- C) They can have multiple transmembrane domains.
- D) They can be associated with fatty acids.
- E) They can be peripheral membrane proteins through electrostatic interactions.

Answer : B

Q29) The glycocalyx is a layer of sugar molecules that covers the surface of cells and plays an important role in various cellular functions. Is it true that the glycocalyx plays a significant role in the lungs by contributing to protection against pollutants and enhancing cellular interactions?

- A) TRUE
- B) FALSE

Answer : A



Q30) Which the following is mismatch :

- A) proteins ——— diffuse laterally through the membrane
- B) lipid rafts ——— specific lipid composition
- C) peripheral membrane protein ———- helical parts
- D) peripheral membrane proteins ——— Non covalent bond
- E) GPI ———— play a role in anchoring

Answer : C

Q31) Which of the following statements about the endoplasmic reticulum (ER) is NOT true?

- A) The rough ER is primarily involved in lipid metabolism.
- B) The transitional ER is responsible for the exit of vesicles to the Golgi apparatus.
- C) The smooth ER does not have ribosomes on its outer surface.
- D) The rough ER plays a key role in protein processing.

Answer : A

Q32) What role does the internal transmembrane sequence play in the insertion of membrane proteins?

- A) It initiates the synthesis of the polypeptide chain.
- B) It determines the direction of insertion and orientation of the protein ends.
- C) It facilitates the exit of the protein from the Golgi apparatus.
- D) It prevents the translocon from recognizing the polypeptide chain

Answer : B

Q33) Proteins and lipids are transported directly from the ER to the Golgi without passing through the ER-Golgi intermediate compartment (ERGIC).

- A) TRUE
- B) FALSE

Answer : B

Q34) Which of the following is NOT true about the smooth ER ?

- A) The smooth ER is the primary site for the synthesis of membrane glycerophospholipids.
- B) Sphingophospholipids like ceramides and glycolipids are synthesized in the smooth ER.
- C) The smooth ER is abundant in cells that produce steroids, such as in the testis and ovary.
- D) The smooth ER plays no role in the metabolism of lipidsoluble compounds in the liver.

Answer : D

Q35) Which of the following processes does NOT occur to proteins once they are inside the endoplasmic reticulum ER?

- A) Formation of disulfide bonds by protein disulfide isomerase
- B) Glycosylation of the proteins
- C) Translation of the polypeptide chain
- D) Folding of the proteins with the help of chaperones

Answer : C

Q36) a vesicle that reaches its targeted membrane but cant attach to it is most likely defective in:

- A) RAP
- B) MYOSIN
- C) MLPH
- D) T-SNARE
- E) none of the above

Answer : D

Q37) what happens to a protein that leaked out of a lysosome:

- A) will transcript DNA
- B) renature
- C) nothing
- D) will lose some of its functions
- E) will attach to lipid

Answer : D



For any feedback, scan the code or click on it.



Corrections from previous versions:

Versions	Question #	Before Correction	After Correction
V1 → V2			
V2 → V3			