

Cholesterol functions in the plasmalemma to

- (A) increase fluidity of the lipid bilayer.
- (B) decrease fluidity of the lipid bilayer.
- (C) facilitate the diffusion of ions through the lipid bilayer.
- (D) assist in the transport of hormones across the lipid bilayer.
- (E) bind extracellular matrix molecules.

answer:B

The cell membrane consists of various components, including integral proteins. These integral proteins

- (A) are not attached to the outer leaflet.
- (B) are not attached to the inner leaflet.
- (C) include transmembrane proteins.
- (D) are preferentially attached to the E-face.
- (E) function in the transport of cholesterol based hormones.

answer:C

Which one of the following transport processes requires energy?

- (A) Facilitated diffusion
- (B) Passive transport
- (C) Active transport
- (D) Simple diffusion

answer:C

Which one of the following substances is unable to traverse the plasma membrane by simple diffusion?

- (A) O₂
- (B) N₂
- (C) Na⁺
- (D) Glycerol
- (E) CO₂

answer:C

Symport refers to the process of transporting

- (A) a molecule into the cell.
- (B) a molecule out of the cell.
- (C) two different molecules in opposite directions.
- (D) two different molecules in the same direction.
- (E) a molecule between the cytoplasm and the nucleus.

answer:D

One of the ways that cells communicate with each other is by secretion of various molecules.

The secreted molecule is known as

- (A) a receptor molecule.
- (B) a signaling molecule.
- (C) a spectrin tetramer.
- (D) an integrin.
- (E) an anticodon

answer:B

Which of the following statements concerning plasma membrane components is TRUE?

- (A) All G proteins are composed of three subunits.
- (B) The glycocalyx is usually composed of phospholipids.
- (C) Ion channel proteins are energy dependent (require adenosine triphosphate).
- (D) Gated channels are always open.
- (E) Ankyrin binds to band 3 of the red blood cell plasma membrane.

answer:E

A structure that is continuous with RER is the

- (A) nuclear pore complex.
- (B) nucleolus.
- (C) heterochromatin.
- (D) outer nuclear membrane.
- (E) euchromatin.

answer:D

Identify the structure that controls movement of proteins in and out of the nucleus.

- (A) Nuclear pore complex
- (B) Nucleolus
- (C) Heterochromatin
- (D) Outer nuclear membrane
- (E) Euchromatin

answer:A

Which of the following organelles divides by fission?

- (A) Golgi complex
- (B) RER
- (C) Peroxisome
- (D) SER
- (E) Centriole

answer:C

Movement of protein from the RER to the Golgi complex takes place in which of the following cell components?

- (A) A caveolin-coated vesicle
- (B) A clathrin-coated vesicle
- (C) A COP-I-coated vesicle
- (D) A COP-II vesicle
- (E) An early endosome

answer:D

Movement of protein from trans to cis-Golgi cisternae occurs in which of the following cell components?

- (A) A caveolin-coated vesicle
- (B) A clathrin-coated vesicle
- (C) A COP-I-coated vesicle
- (D) A COP-II vesicle
- (E) An early endosome

answer:C

Movement of acid hydrolases from the TGN to a late endosome takes place in which of the following cell components?

- (A) A caveolin-coated vesicle
- (B) A clathrin-coated vesicle
- (C) A COP-I-coated vesicle
- (D) A COP-II vesicle
- (E) An early endosome

answer:B

Which of the following cytoskeletal components is associated with kinesin?

- (A) Keratin
- (B) Lamin A
- (C) Microfilament
- (D) Microtubule
- (E) Neurofilament

answer:D

Which of the following consists of globular actin monomers linked into a double helix?

- (A) Keratin
- (B) Lamin A
- (C) Microfilament
- (D) Microtubule
- (E) Neurofilament

answer:C

Which of the following has a rigid wall composed of 13 protofilament strands?

- (A) Keratin
- (B) Lamin A
- (C) Microfilament
- (D) Microtubule
- (E) Neurofilament

answer:D

Which of the following provides structural support to astrocytes?

- (A) Keratin
- (B) Lamin A
- (C) Microfilament
- (D) Microtubule
- (E) Neurofilament

answer:E

Which one of the following statements about hyaluronic acid is true?

- (A) It is a component of elastic fibers.
- (B) It is a glycosaminoglycan.
- (C) It is a proteoglycan with a shape resembling a bottlebrush.
- (D) It is sulfated.
- (E) It is a small molecule.

answer:B

Which of the following is an adhesive glycoprotein that links type IV collagen with laminin in the lamina densa?

- (A) Fibrillin
- (B) Fibronectin
- (C) Elastin
- (D) Entactin
- (E) Tenascin

answer:D

Section 3 quizzes:

1] If the total number of ions that crossed the plasma membrane through the sodium / potassium pump is 125 , which of the following sentences is true :

- a. 75 sodium ions (outside>> inside), 50 potassium ions (inside>> outside)
- b. 50 sodium ions (inside>> outside) , 75 potassium ions (outside >> inside)
- c. 75 sodium ions (inside>> outside) , 50 potassium ions (outside >> inside)
- d. 50 sodium ions (outside>>inside), 75 potassium ions (inside>> outside)
- e. none of the above

C is the correct answer

(3:2 ratio)

[6] True or False

Archaea can live in normal conditions

true is the correct answer

[7] true or false

RBC has a nucleus and has cytoplasmic membranes organelles but they are compressible that's why the cell is durable and able to maintain its biconcave shape

False is the correct answer

[8] why are cells so small?

- a. It is better to have many cells than to have large cells
- b. Surface area to volume ratio
- c. Cells get bigger as organisms get bigger
- d. Cells need to move between very small areas
- e. All of the above

b is the correct answer

[9] Plant cells are different from animal cells. Select the name of the structures found in animal cells but not in plant cells.

- a. lysosomes
- b. Central vacuole
- c. Microvilli
- d. Cell wall
- e. a & c

e is the correct answer

[10] structure & function are always related, according to this which one of these pairs isn't correctly matched

- a. Storing calcium ions - SER
- b. Modifying different synthesized molecules - Golgi apparatus
- c. Plays crucial role in endocytosis and exocytosis - vesicles
- d. Tagging cells and cell- cell recognition - phospholipids
- e. None of the above

d is the correct answer

Exocytosis occurs as a mechanism of secretion in many cells, fusion between vesicles and the plasma membrane in exocytosis leads to which of the following:

- a- both the luminal and the cytosolic surfaces of the vesicles become part of the cytosolic surface of the membrane

b- the luminal surface of the vesicle becomes part of the inner (cytosolic) surface of the plasma membrane and the cytosolic surface becomes part of the outer surface of the plasma membrane

c- the luminal surface of the vesicle becomes part of the outer surface of the plasma membrane and the cytosolic surface becomes part of the inner surface of the PM

d- both the luminal and the cytosolic surfaces of the vesicles become part of the outer surface of the PM

e- the answer depends on the type of the vesicle

The correct answer is c

Which of the following is wrong:

a- heterolysosomes are the ones responsible for the digestion of molecules from outside the cell

b- Golgi apparatus is made of 5 different compartments

c- the number of glucose molecules in a carbohydrates chain in a glycoprotein is 4

d- it is a must to target the vesicles back to the cell in pinocytosis

e- none of the above

c is the correct answer

If a human has a mutation which causes a disability in the process of attaching GTPs to Rabs (G proteins) which of the following mechanisms will be affected

a-recruiting specific cytosolic tethering proteins to specific membrane surfaces

b-attachment of clathrin to MPR6

c-recruiting motor proteins that move membranous vesicles through the cytoplasm

d-a & c are correct

e-all of the above

d is the correct answer

1.Fill in the blank

When we purify the RBC leaving only the plasma membrane by placing them in a _____ solution, they swell and become leaky, and their contents flow out from the cell, leaving the plasma membrane as a 'ghost'

- A. Hypertonic
- B. Isotonic
- C. Hyperosmotic
- D. Hypotonic
- E. Isosmotic

Answer:d

2. What functions (other than generation of ATP) is the mitochondrion responsible for?

- A. Main producers of proteins
- B. Synthesis of substances (eg; amino acids)
- C. Helps the ER in maintaining the concentration of calcium
- D. Helps golgi apparatus in sorting and packing substances
- E. Both C & D
- F. Both B & C

Answer:F

4. Detoxification happens mostly in liver cells in the sER, it mostly carried out by oxygenates, one of which is the _____ and they are known for _____

A. Peroxisomal enzymes ; Digestion

B. Acyltransferases ; substrate specificity

C. Cytochrome P450 family ; lack of substrate specificity

D. None of the above

Answer:c

5. Integral proteins are synthesised on _____

A. Free ribosomes

B. Bound ribosomes

answer:b

6. Addition of sugars to an oligosaccharide is catalysed by which enzyme?

A. Glycosyltransferases

B. Oligosaccharyltransferase

C. Glucocerebrosidase

D. Flippase

E. 3afretase

Answer:a

7. What model describing the movement of materials through the Golgi complex is currently in use?

A. Vesicular transport model

B. Cisternal maturation model

C. None of the above

D. Similar to B but with A retrograde transport

E. The Golgi vesicular maturation model.

Answer:d

8. COP II-coated vesicles move materials from the ER “backward” to the ERGIC and Golgi complex.

A. True

B. False ; “forward”

Answer:b

9. A typical non-dividing nucleus has all of the following EXCEPT:

A. Nucleoli

B. Chromatin

C. Sister Chromatids

D. Nucleoplasm

E. Nuclear Matrix

Answer:c