



NOVA

Charting New Horizons in Education

Mid exam cell biology archive

06

Cell biology



Q 1



Which of the following is NOT a function of smooth endoplasmic reticulum:

- A. Making fats or lipids
- B. Enzyme synthesis
- C. Destroying toxic
- D. Regulating calcium
- E. Cholesterol metabolism



Metachromasia is:

- A. Staining of tissue by color of original stain
- B. Staining of phagocytic cells by trypan blue
- C. Staining of a tissue by a color differs from the original stain
- D. Staining of living cells outside the body
- E. Staining of dead tissue inside the body

Q 3



Choose the INCORRECT statement?

- A. Tight junctions control the transport of molecules through the cells
- B. Tight junctions are random spot attachments between cells that prevent splitting of tissue
- C. Desmosomes serve as anchoring Junctions between cells
- D. Junctions are very well developed in epithelial cells
- E. Anchoring junctions integrins is linked to laminin molecules extracellularly and to cytoskeleton keratin.

Q 4



Which of the following is a non-membranous organelle?

- A. Mitochondria
- B. The rough endoplasmic reticulum
- C. Centrioles
- D. Lysosome
- E. Peroxisome

Q 5



All the following statements about freezing technique are wrong EXCEPT :

- A. slow technique to diagnose
- B. some sections can be obtained
- C. done using fermol saline
- D. preserved for long time
- E. for histochemical studies

Q 6



which of the following is CORRECTLY matched?

- A. channel proteins are part for new protein synthetization
- B. single pass trans-membranous proteins span the lipid bilayer once
- C. marker molecules are primarily steroids
- D. receptor molecules attach to cholesterol molecules
- E. peripheral proteins penetrate the lipid bilayer from one surface to the other



A cell is recognized by other tissue members as self by its surface by:

- A. Cholesterol Prostate
- B. Phosphate surface
- C. Glycoprotein
- D. Ketoglutarate
- E. Glyco-carbohydrates



The cell adhesion molecules (CAMs) that form the tight junctions are:

- A. Connexin // Integrins
- B. Claudins // Adherins
- C. Occludins // Connexins
- D. Occludins // Claudins

The resolution power of light microscope equals:

- A. 0.2 millimeter
- B. 0.2 nanometer
- C. 0.2 micrometer
- D. 0.5 micrometer
- E. 10 angstroms

Q 10



in which ways are facilitated diffusion and simple diffusion similar:

- A. Both require energy
- B. Both require protein carriers
- C. Both move substances from low to high concentration
- D. Both move substances from high to low concentration
- E. Both require protein channels

▼ answers



1. B

2. C

3. B

4. C

5. E

6. B

7. C

8. D

9. C

10. D

Q 11



Choose the INCORRECT statement among the followings?

- A. Phase contrast microscopy is used for visualizing live cells in tissue cultures
- B. In situ hybridization is used to demonstrate the pattern of expression of enzymes
- C. When a tissue is stained using Hematoxylin & Eosin, the nucleus appears blue because it is acidophilic which reacts with hematoxylin
- D. One thousand micrometers are equal to one millimeter
- E. The condenser of light microscope is used to augment the illumination power

Q 12



Which of the following is NOT TRUE regarding routine histological stains Hematoxylin and Eosin?

- A. Hematoxylin is a blue dye
- B. Cytoplasmic RNA will attract Hematoxylin
- C. The nucleus is basophilic
- D. Eosin is a red basic dye
- E. Eosin is a negatively charged dye

Q 13



If you want to examine a tissue composed of different types of cells. The cells to examine can be distinguished by external shape, size and three-dimensional characteristics Which would be the optimum method for your study?

- A. Light microscopy using living unstained samples
- B. Cell fractionation
- C. Transmission electron microscopy
- D. Light microscopy using the routine stains “Hematoxylin and Eosin”
- E. Scanning electron microscopy

Q 14



All of the following processes can move substances inside the cell EXCEPT:

- A. Exocytosis
- B. Simple diffusion
- C. Active transport
- D. Phagocytosis
- E. Antiport system

Q 15



Which of these junctions connect epithelial cells to their basement membrane and adjacent cells respectively?

- A. Gap junction // Hemidesmosome
- B. Zonula adherens // Macula densa
- C. Hemidesmosome // Desmosomes
- D. Zonula occludens // Zonula adherens
- E. Hemidesmosomes // Synapse

Q 16



A structure made of two or more tissues that work together is called:

- A. Organelles
- B. Organ
- C. Organ system
- D. Cells
- E. Organism

Q 17



The sodium-potassium pump located in the plasma membrane :

- A. Passively moves potassium outside cells
- B. Osmotically moves sodium into cells
- C. Actively moves sodium outside cells
- D. Moves chloride out of cells
- E. Passively moves sodium into cells

Q 18



blood groups are marked by surface:

- A. Cholesterol
- B. Glycolipids
- C. Glyco-carbohydrates
- D. Glycerol
- E. Glutamate

Q 19



If a carrier protein were to move both hydrogen and chloride ions from the inside of a cell to the extracellular fluid, and consume ATP in the process. It would be considered a:

- A. Symport active system
- B. Antiport active system
- C. Facilitated diffusion system
- D. Simple diffusion system
- E. Symport diffusion system

Q 20



Which of the following statements best describes the extracellular matrix?

- A. Provides an impermeable barrier between cells
- B. Is a non-cellular component present within all tissues and organs
- C. Bone extra cellular matrix is rubbery in consistency
- D. Always contain equal amounts of water, proteins and electrolytes
- E. It is physiologically inactive and only serve to separate the cells of tissues

Answers



11.E

12.D

13.E

14.A

15.A

16.B

17.C

18.B

19.A

20.B

Q 21



function of histological specimens in 10 % formal saline is essential for:

- A. Gradual removal of water from tissue
- B. Inhibit degeneration and Replace alcohol
- C. Clear the section and making it transparent for staining
- D. Keep the cells alive

Q 22



The organelle that protects cells from the damaging effects of medications and toxins is the:

- A. Ribosomes
- B. Microtubule
- C. Smooth endoplasmic reticulum
- D. Secretory vesicle
- E. Flagella

Q 23



Which of these statements about facilitated diffusion is TRUE?

- A. In facilitated diffusion the movement is against the concentration gradient
- B. Facilitated diffusion requires the expenditure of energy
- C. Facilitated diffusion does not require a carrier protein
- D. Facilitated diffusion moves materials through membrane channels
- E. Facilitated diffusion moves materials in vesicles

Q 24



which of the following is matched wrong?

- A. Trypan blue // mast cells
- B. Leishman // blood films
- C. Trichrome // collagen fibers
- D. Silver stain // nerve cells

Q 25



All of the following are CAMs except?

- A. Cadherin
- B. Selectin
- C. Integrin
- D. Catenin
- E. Actin

Q 26



All of the following are function of glycocalyx except?

- A. Protection
- B. Adhesion
- C. Receptor
- D. Lipid synthesis

Q 27



The correct match:

- A. Anchoring junction → allow flow of current
- B. Tight junction → chemical synapse
- C. Gap junction → blood brain barrier
- D. Zonula occludens → prevent flow of material between the cells

Q 28



The true arrangement in centrifugation:

- A. Ribosomes, nucleus, microsomes, mitochondria
- B. Mitochondria, microcosms, nucleus, ribosomes
- C. Nucleus, mitochondria, microsomes, ribosomes
- D. Nucleus, mitochondria, ribosomes, microsomes
- E. Ribosomes, mitochondria, microsomes, nucleus

Q 29



Fluorescent in situ hybridization technique is used for:

- A. Isolating cell components
- B. Rapid technique for diagnosis of tumors
- C. Purify nucleic acid fragments
- D. Localize the site of the genes on chromosomes

Q 30



Not composition of CAMs:

- A. Extracellular domain
- B. Transmembrane domain
- C. Nuclear domain
- D. Cytoplasmic domain

Answers



21.D

22.C

23.D

24.A

25.E

26.D

27.D

28.C

29.D

30.D

Q 31



Which of the following composed of protein actin?

- A. Microfilaments
- B. Microtubules
- C. Intermediate filament
- D. Microvilli

Q 32



Where calcium is stored?

- A. Rough endoplasmic reticulum
- B. Smooth ER
- C. Centrioles
- D. Golgi apparatus

Q 33



Which of these matching is correct :

- A. Facilitated diffusion-non polar molecules
- B. Facilitated diffusion-polar molecules
- C. Difficult diffusion-polar molecules
- D. Difficult diffusion-non polar molecules

Q 34



Which of the following sentences is true:

- A. Hematoxylin = stains nucleus blue
- B. Freezing = useful for histochemical student
- C. A+B
- D. None of them

Q 35



What molecules can get through bilayer membrane directly:

- A. NH₃
- B. CO₂&O₂
- C. Amino acids
- D. Chloride
- E. potassium

Q 36



What is the transport that doesn't move things out:

- A. Exocytosis
- B. Phagocytosis
- C. Antiport transport
- D. Symport transport

Q 37



One of the following is true about peroxisomes ?

- A. Digests unwanted cell parts and other wastes
- B. is a membrane-bound organelle which is present in all plant and fungal cells and some protozoa's
- C. Where hydrogen peroxide is formed
- D. Contains digestive enzymes

Q 38



An organelle that sorts and packages protein?

- A. Golgi complex
- B. Rough ER
- C. Smooth ER
- D. Transport vacuole
- E. Mitochondria

Q 39



If we need more protein, we have to Increase?

- A. Golgi complex
- B. Rough ER
- C. Smooth ER
- D. Nucleus
- E. Mitochondria

Q 40



Hemidesmosome?

- A. Attach the base of the epithelium to the basement membrane
- B. Found at the basolateral membrane
- C. Act as electrical junction in the heart
- D. found at the head of epithelial membrane

Q 41



Leaky gut syndrome is due to?

- A. A defect in the zonula adherens
- B. A defect in the oropharynx
- C. A defect in the zonula occludens
- D. A defect caused by gluten

Answers



41.C

42.B

43.A

44.E

45.A

Q 42



Pemphigus vulgaris is a disease caused by:

- A. A defect in the desmoplakins of the desmosomes of the epidermis
- B. A defect in the desmogleins of the desmosomes of the epidermis
- C. A defect in the hemi-desmosomes
- D. a defect in the mitochondria of the epidermis

Q 43



Which of the following is incorrect about the mitochondria?

- A. Mitochondria are found in large amounts in the skin compared to liver cells
- B. Mitochondria is formed of two membranes, inner and outer
- C. The cristae are folds of the inner membrane of the mitochondria
- D. Mitoplasts are different than mitochondria because of its lack of an outer membrane

Q 44



Which type of cell junction is mainly responsible of the blood-brain barrier?

- A. Gap junctions
- B. Hemi-desmosomes
- C. Anchoring junctions
- D. Desmosomes
- E. Tight junctions

Q 45



Bullous pemphigoid is?

- A. Dermatological disease due to hemi-desmosome defect
- B. Acute blisters in the skin
- C. Only occurs in young adults
- D. Dermatological disease due to zonula adherens defect

Answers



31.A

41.C

32.B

42.B

33.B

43.A

34.C

44.E

35.B

45.A

36.B

37.C

38.A

39.B

40.A



«Wherever the art of medicine is loved,
there is also a love of humanity.»

- Hippocrates-

