

Course No: PHS 1301  
Course Title: General Biology  
Date: 20/11/2014  
No. of Questions: (7)  
Time: 1hours  
Using Calculator (No)

University of Palestine



Midterm Exam  
2014/2015  
Total Grade:

Instructor Name: Dr. Akram Atallah  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: Pharmacy College  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

**Q1: Choose the best corresponding answer (0.5 mark each)**

1. All of the following are part of a prokaryotic cell *except*
  - A. DNA.
  - B. a cell wall.
  - C. a plasma membrane.
  - D. ribosomes.
  - E. an endoplasmic reticulum.
2. Which of the following does *not* contain functional ribosomes?
  - A. a prokaryotic cell.
  - B. a plant mitochondrion.
  - C. a chloroplast.
  - D. an animal mitochondrion.
  - E. a nucleolus.
3. Of the following, which is probably the most common route for membrane flow in the endomembrane system?
  - A. Golgi → lysosome → ER → plasma membrane.
  - B. tonoplast → plasma membrane → nuclear envelope → smooth ER.
  - C. nuclear envelope → lysosome → Golgi → plasma membrane.
  - D. rough ER → vesicles → Golgi → plasma membrane.
  - E. ER → chloroplasts → mitochondrion → cell membrane.
4. In animal cells, hydrolytic enzymes are packaged to prevent general destruction of cellular components. Which of the following organelles functions in this compartmentalization?
  - A. chloroplast
  - B. lysosome
  - C. central vacuole
  - D. peroxisome
  - E. glyoxysome
5. Which of the following is *not* a known function of the cytoskeleton?
  - A. to maintain a critical limit on cell size.
  - B. to provide mechanical support to the cell.
  - C. to maintain the characteristic shape of the cell.
  - D. to hold mitochondria and other organelles in place within the cytosol.
  - E. to assist in cell motility by interacting with specialized motor proteins.
6. Which best describes the structure of a plasma membrane?
  - A. proteins embedded within two layers of phospholipids.
  - B. phospholipids sandwiched between two layers of proteins.
  - C. proteins sandwiched between two layers of phospholipids.
  - D. a layer of proteins on top of a layer of phospholipids.

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- 7 . Where does the citric acid cycle occur in eukaryotes?  
A. in the cytosol .  
B. in the matrix of mitochondria.  
C. in the inner membrane of mitochondria.  
D. in the intermembrane space of mitochondria.
8. Which answer specifically describes the process illustrated.  
Water -- chlorophyll + light --> hydrogen + oxygen
- A. fermentation reactions.  
B. dark reactions.  
C. carbon fixation reactions.  
D. photochemical reactions.
9. Coated pits are required for which type of membrane transport?  
A. receptor-mediated endocytosis.  
B. Pinocytosis.  
C. Exocytosis.  
D. Phagocytosis.
- 10 . Grana, thylakoids, and stroma are all components found in  
A. vacuoles.  
B. chloroplasts.  
C. mitochondria.  
D. lysosomes.  
E. nuclei.
- 11 . Cells would be unable to form cilia or flagella if they did not have  
A. ER .  
B. ribosomes.  
C. actin.  
D. A and B only.  
E. A, B, and C .
12. Which of the following is not considered part of the endomembrane system?  
A. nuclear envelope.  
B. chloroplast .  
C. Golgi apparatus.  
D. plasma membrane.  
E. ER.

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13. Cells of the pancreas will incorporate radioactively labeled amino acids into proteins. This "tagging" of newly synthesized proteins enables a researcher to track the location of these proteins in a cell. In this case, we are tracking an enzyme that is eventually secreted by pancreatic cells. Which of the following is the most likely pathway for movement of this protein in the cell?

- A. ER → Golgi → nucleus.
- B. Golgi → ER → lysosome.
- C. nucleus → ER → Golgi.
- D. ER → Golgi → vesicles that fuse with plasma membrane.
- E. ER → lysosomes → vesicles that fuse with plasma membrane.

14. \_\_\_\_\_ is composed of DNA and protein.

- A. A mitochondrion.
- B. A flagellum.
- C. A centriole.
- D. Chromatin.
- E. A ribosome.

15. The process by which a vesicle is formed at the plasma membrane to bring substances into the cell is called \_\_\_\_\_.

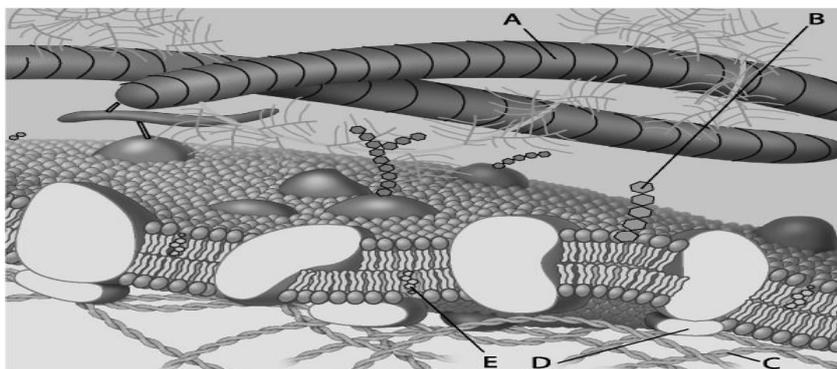
- A. Endocytosis.
- B. Exocytosis.
- C. Plasmolysis.
- D. Hemolysis.
- E. Crenation.

16. The presence of cholesterol in the plasma membranes of some animals.

- A. Enables the membrane to stay fluid more easily when cell temperature drops.
- B. Enables the animal to remove hydrogen atoms from saturated phospholipids.
- C. Enables the animal to add hydrogen atoms to unsaturated phospholipids.
- D. Makes the membrane less flexible, allowing it to sustain greater pressure from within the cell.
- E. Makes the animal more susceptible to circulatory disorders.

17. Which component is a glycolipid?

( A. A - B. B - C. C - D. D)



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18. for the given statement, choose the process that is best described by the statement

**G3P** is synthesized

- A. aerobic respiration                      B. anaerobic respiration  
C. carbon-fixation reactions of          D. photochemical reactions of  
photosynthesis                              photosynthesis

19. Which of the following is NOT true of Plasmodesma?

- A. They allow water to pass from cell to cell.  
B. They allow cytosol to pass from cell to cell.  
C. They allow cells to be organized into tissues.  
D. They are found in animal cells.

20. An enzyme that catalyzes the synthesis of ATP is

- A. ATP synthase.                              C. glucose synthase.  
B. ADP synthase.                              D. phosphate synthase.

21. The energy used in the Calvin cycle for the production of sugar molecules comes from

- A. ATP only.                                      C. ATP and NADPH.  
B. The Krebs cycle.                              D. Carbon dioxide.

22. What part of the cell serves to process, package and export proteins?

- A. Mitochondria  
B. endoplasmic reticulum.  
C. Nucleolus.  
D. golgi apparatus.

23. Which of the following occurs in both photosynthesis and respiration?

- A. Glycolysis.  
B. Chemiosmosis.  
C. Calvin cycle.  
D. Krebs cycle.

24. Which of the following is necessary for oxidative phosphorylation to occur?

- A. ATP.  
B. Oxygen.  
C. carbon dioxide.  
D. lactic acid.

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25. Which of the following are prokaryotic cells?
- A. Plants.
  - B. Fungi.
  - C. Bacteria.
  - D. Animals.
  - E. B and C only.
26. Large numbers of ribosomes are present in cells that specialize in producing which of the following molecules?
- A. Lipids.
  - B. Starches.
  - C. Proteins.
  - D. Steroids.
  - E. Glucose.
27. Which of the following organelles is not a common destination for small vesicles that bud off the Golgi apparatus?
- A. plasma membrane.
  - B. Lysosomes.
  - C. Vacuole.
  - D. Endoplasmic reticulum.
  - E. All of the above.
28. Which of the following are capable of converting light energy to chemical energy?
- A. Chloroplasts.
  - B. Mitochondria.
  - C. Leucoplasts.
  - D. Peroxisomes.
  - E. Golgi bodies.
29. What kinds of molecules pass through a cell membrane most easily?
- A. large and hydrophobic .
  - B. small and hydrophobic.
  - C. large polar .
  - D. ionic .
  - E. monosaccharides such as glucose.
30. Organelles other than the nucleus that contain DNA include
- A. ribosomes.
  - B. mitochondria.
  - C. chloroplasts. .
  - D. B and C only .
  - E. A, B, and C .

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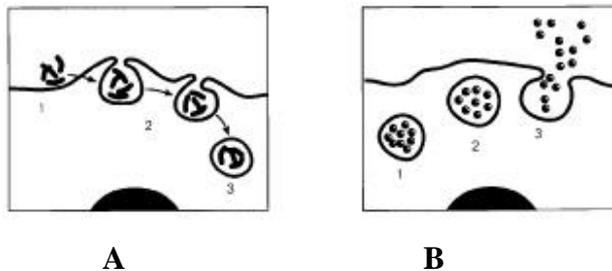
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Test your knowledge (1 mark each)

Q2. Refer to the illustration above. The process shown in figure B is called \_\_\_\_\_.

Q3. Refer to the illustration above. Cells often engulf extracellular particles and fluid, as shown in figure A. This is called \_\_\_\_\_.



Q4: What are the types of cell respiration?

Q5: What are the three phases into which the cell respiration is divided?

Q6: What is glycolysis? What are the products of this process?

Q7. **Modified True/False:- (0.5 mark each)**

- A. Four bases in a row make up one codon ( )
- B. The mitochondria does not produce ATP ( )
- C. RNA is the material stored in the nucleus which contains genes. ( )
- D. The major light-absorbing pigment in plant photosynthesis is carotenoid. ( )
- E. Increasing light intensity increases the rate of photosynthesis only until all the oxygen molecules in chloroplasts are being used. ( )
- F. Glycolysis breaks down glucose into two pyruvates. ( )
- G. Exocytosis helps the cell rid itself of wastes. ( )
- H. The cell membrane is made up of a double layer called the DNA bilayer. ( )
- I. The final product of photosynthesis is not actually glucose. ( )
- J. When light hits a plant, all of the wavelengths are absorbed and used to make sugar. ( )