

Course No: PHRM 1301  
Course Title: General biology  
Date: 12/01/2017  
No. of Questions: (4)  
Time: 2 hours  
Using Calculator (No)

University of Palestine



Final Exam  
2016/2017  
Total Grade:

Instructor Name: Abd El Rahman Hamad  
&Ismail Mezher  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: College of Pharmacy  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

### Question One:

Circle the most correct answer. (10 points)

1. The light reactions of photosynthesis supply the Calvin cycle with

- a. light energy.
- b. CO<sub>2</sub> and ATP.
- c. H<sub>2</sub>O and NADPH.
- d. ATP and NADPH.

2. Which of the following statements is a correct distinction between autotrophs and heterotrophs?

- a. Autotrophs, but not heterotrophs, can nourish themselves beginning with CO<sub>2</sub> and other nutrients that are inorganic.
- b. Only heterotrophs require chemical compounds from the environment.
- c. Cellular respiration is unique to heterotrophs.
- d. Only heterotrophs have mitochondria.

3. Which of the following does *not* occur during the Calvin cycle?

- a. carbon fixation
- b. oxidation of NADPH
- c. release of oxygen
- d. regeneration of the CO<sub>2</sub> acceptor

4. During translation, the \_\_\_\_ site within the ribosome hold the growing amino acid chain while the \_\_\_\_ site holds the next amino acid to be added to the chain.

- a. A, P
- b. A,E
- c. P,A
- d. P,E

5. How many nucleotides are needed to code for a protein with 350 amino acids?

- a. at least 150
- b. at least 300
- c. at least 350
- d. at least 1050

6. Which metabolic pathway is common to both fermentation and cellular respiration of a glucose molecule?

- a. the citric acid cycle
- b. the electron transport chain
- c. glycolysis
- d. reduction of pyruvate to lactate

7. The final electron acceptor of the electron transport chain that functions in aerobic oxidative phosphorylation is

- a. oxygen.
- b. water.
- c. NAD<sup>+</sup>.
- d. pyruvate.

8. A human cell containing 22 autosomes and a Y chromosome is

- a. a sperm.
- b. an egg.
- c. a zygote.
- d. a somatic cell of a male.

9. During which stage of meiosis do tetrads line up at center

- a. Anaphase I
- b. Metaphase I
- c. Metaphase II
- d. Prophase II

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**10. All this reasons are causes sexual genetic variation except one:**

- a. Dependant assortment
- b. Random fertilization
- c. Crossing-over
- d. Independent assortment

**11. Which of the following does *not* occur during mitosis?**

- a. condensation of the chromosomes
- b. replication of the DNA
- c. separation of sister chromatids
- d. spindle formation

**12. During cellular respiration .**

- a. ATP is consumed
- b. Glucose is produced
- c. ATP is produced
- d. energy is consumed

**13. This process uses NADH and FADH<sub>2</sub> to produce ATP**

- a. oxidative phosphorylation
- b. fermentation
- c. glycolysis
- d. krebs cycle

**14. Which of the following statements is FALSE?**

- a. glycolysis produces 2 ATP, 2 NADH, and 2 pyruvate
- b. glycolysis is the first step in both aerobic and anaerobic respiration
- c. glycolysis occurs in the mitochondria
- d. glycolysis can occur with or without oxygen

**15. Which of the following occurs in the stroma of the chloroplast?**

- a. light reaction.
- b. electron transport chain
- c. calvin cycle.
- d. photolysis

**16. Carbon fixation is catalyzed by what enzyme?**

- a. NADPH.
- b. phosphoglycerate
- c. rubisco.
- d. Acetyl Co-A

**17. During which stage of cell division do the centromeres split?**

- a. Interphase
- b. Anaphase
- c. Telophase
- d. Prophase

**18. During which stage of meiosis do the sister chromatids begin to move toward the poles?**

- a. Prophase I
- b. Telophase I
- c. Anaphase II
- d. Anaphase I

**19. \_\_\_\_\_ T cells are the only T cells involved in cell-mediated immunity.**

- a. Cytotoxic
- b. Helper
- c. Memory
- d. Suppressor

**20. With the human ABO blood types in the below transfusions, which person would safely receive blood lacking foreign antigens?**

- a. a type A person received type B blood
- b. a type B person received type A blood
- c. a type O person received type B blood
- d. a type A person received type AB blood

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### Question Two:

Write the term for each of the following statements. (6 points)

1.		Diffusion of a substance across a biological membrane is without expended energy by the cell to make it happen.
2.		Genes that tend to be inherited together and located on the same chromosome.
3.		Is the distances between genes and represents a 1% recombination frequency.
4.		It is a type of T cell triggers both the humoral and cell-mediated immune responses.
5.		Plants that produce offspring of the same variety when they self-pollinate.
6.		In this process glucose breaks down into two molecules of pyruvate.
7.		The process that powered by redox reactions and generates most of the ATP during cellular respiration.
8.		Is the process that converts solar energy into chemical energy.
9.		Remove Intron and join Exons together.
10.		Are the producers of the biosphere, producing organic molecules from CO <sub>2</sub> and other inorganic molecules.
11.		A structure made of microtubules that controls chromosome movement during mitosis.
12.		That encloses the nucleus, separating it from the cytoplasm.

### Question Three:

State which of the following is true (✓) and which is false (✗). (10 points)

1. The fluid mosaic model states that a membrane is a fluid structure with a “mosaic” of various proteins embedded in it.
2. The four phenotypes of the ABO blood group in humans, is the example for multiple alleles.
3. B-cell is responsible for Antibody secretion.
4. A tRNA molecule consists of a double RNA strand that is only about 80 nucleotides Long.
5. The *SRY* gene on the Y chromosome codes for a protein that directs the development of male anatomical features.
6. RNA polymerase help eukaryotic to recognize promoter sequences.
7. In crossing over, sister chromatids exchange DNA segments.
8. Photorespiration limits damaging products of light reactions that build up in the absence of the Calvin cycle.
9. During Interphase, cell growth and copying of chromosomes in preparation for cell division.
10. All tRNA are identical but carry different amino acid.
- 11 The Mechanism of transcription termination are the same between Eukaryotic and Prokaryotic.
12. Most cell division results in daughter cells with nonidentical genetic information.

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13. Lymphocytes that mature in the thymus are called T cells.
14. In Eukaryotic cell transcription and translation occur together.
15. All somatic cells of the body take its genetics from zygote genes by the process of meiosis .
16. The observed frequency of recombination of two genes that are far apart from each other has a maximum value of 100%.
17. In epistasis, a gene at one locus alters the phenotypic expression of a gene at a second locus.
18. Chloroplasts split H<sub>2</sub>O into hydrogen and oxygen, incorporating the electrons of hydrogen into sugar molecules.
19. The allele that is fully express phenotypically in a heterozygote genotype is a recessive .
20. For a few mammalian traits, the phenotype depends on which parent passed along the alleles for those traits.

#### Question Four:

##### A- Match The following. ( 6 points)

1.( ) Heterotroph	A- amino acid
2.( ) Gametes	B- Quantitative characters
3.( ) RNA polymerase	C- light reactions
4.( ) Anticodon	D- the division of cytoplasm
5.( ) aminoacyl-tRNA synthetase	E- Introns
6.( ) Autotroph	F- Consumers
7.( ) polygenic inheritance	G- Producers
8.( ) thylakoids	H- reproductive cells
9.( ) spliceosomes	J- tRNA
10.( ) cytokinesis	K- Transcription
11.( ) SRY gene	L- Synthesizes lipids
12.( ) Smooth ER	M- Y-linked

##### B- Discuss all of the following (Short answers). (18 points)

1. Stages of aerobic cellular respiration ?
2. Translation of mRNA?
3. Transcription of DNA?
4. Role of Helper T cell?
5. Innate immunity types?
6. Types of Fermentation?

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**End of Questions**  
*Good Luck*