



IMDO

Sample IMDO Questions

Molecular and Cell Biology

1. Which of the following macromolecules is not a polymer?
 - a. Starch
 - b. Cellulose
 - c. Protein
 - d. DNA
 - e. Phospholipid
2. Where are the large and small subunits of ribosomes assembled?
 - a. Rough endoplasmic reticulum
 - b. Cytosol
 - c. Golgi apparatus
 - d. Nucleolus
 - e. Smooth endoplasmic reticulum
3. What is the motor protein that is associated with microtubules in the flagella?
 - a. Flagellin
 - b. Dynein
 - c. Kinesin
 - d. Actin
 - e. Myosin
4. The uptake of which substance into cells requires receptor-mediated endocytosis?
 - a. Glucose
 - b. Fructose
 - c. LDL
 - d. MHC
 - e. Testosterone
5. How many NADH molecules are produced per acetyl-CoA in the citric acid cycle?
 - a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 6
6. Which of the following does not function as a second messenger?
 - a. cAMP
 - b. Inositol triphosphate (IP₃)
 - c. Diacylglycerol (DAG)
 - d. Sodium (Na⁺)
 - e. Calcium (Ca²⁺)



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7. Which of the following is not a difference between mitosis and meiosis?
 - a. Separation of chromatids
 - b. Formation of tetrads
 - c. Crossing over
 - d. Synapsis
 - e. Formation of Chiasmata

8. Which enzyme untwists the double-stranded DNA and separates the two strands?
 - a. Ligase
 - b. Primase
 - c. Topoisomerase
 - d. DNA Polymerase
 - e. Helicase

9. What is the gel electrophoresis of mRNA followed by labeled-probe hybridization called?
 - a. Southern blotting
 - b. Northern blotting
 - c. Western blotting
 - d. Eastern blotting
 - e. In situ hybridization

10. What is one method of gene duplication in sexual organisms?
 - a. Reverse transcription
 - b. Genomic imprinting
 - c. Nondisjunction
 - d. Translocation
 - e. Unequal crossing-over

Human Physiology

1. Which of the following is not a connective tissue?
 - a. Tendon
 - b. Bone
 - c. Blood
 - d. Adipose tissue
 - e. Glia

2. Which water-soluble vitamin is needed by pregnant woman to prevent birth defects?
 - a. Thiamine
 - b. Riboflavin
 - c. Niacin
 - d. Folic acid
 - e. Ascorbic acid



3. Which cell secretes pepsinogen in the stomach?
 - a. Parietal cell
 - b. Chief cell
 - c. Mucous cell
 - d. Goblet cell
 - e. Acinar cell

4. Which organ or tissue synthesizes erythropoietin, the hormone that stimulates red blood cell production?
 - a. The kidney
 - b. The liver
 - c. The bone marrow
 - d. The pancreas
 - e. The heart

5. Which is by far the major mechanism of carbon dioxide transport in the blood?
 - a. Bound to hemoglobin
 - b. Converted to bicarbonate ion and hydrogen ion
 - c. Dissolved in plasma
 - d. As gas bubbles
 - e. Converted to glucose

6. Which of the following is not a phagocyte?
 - a. Neutrophil
 - b. Mast cell
 - c. Macrophage
 - d. Eosinophil
 - e. Dendritic cell

7. Which of the following hormone or compound has the least effect on blood pressure?
 - a. Cortisol
 - b. Epinephrine
 - c. Angiotensin
 - d. Renin
 - e. Aldosterone

8. In which structure are sperm stored after their maturation in the testes?
 - a. Seminiferous tubules
 - b. Epididymis
 - c. Vas deferens
 - d. Seminal vesicle
 - e. Prostate gland



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9. Which of the following structures is or are formed from ectoderm?
- Dermis of skin
 - Lining of digestive tract
 - Lining of respiratory tracts
 - Skeleton
 - Teeth
10. What is the neurotransmitter secreted by the motor neurons at the neuromuscular junction?
- GABA
 - Acetylcholine
 - Glutamate
 - Norepinephrine
 - Nitric oxide

Human Disease

1. Which of the following bacterial diseases does not involve a G protein?
- Cholera
 - Tetanus
 - Pertussis
 - Botulism
 - Diarrhea caused by E. coli heat-labile enterotoxin
2. Which of the following is not the result of aneuploidy?
- Down syndrome
 - Klinefelter syndrome
 - William syndrome
 - Turner syndrome
 - Edwards syndrome
3. Which of the following is a proto-oncogene?
- ras
 - p53
 - p21
 - BRCA1
 - APC
4. Which hormone is involved in diabetes insipidus?
- Insulin
 - Glucagon
 - Vasopressin
 - Thyroxine
 - Oxytocin



5. Which compound causes the symptoms of both inflammation and allergy?
- a. Cytokine
 - b. Histamine
 - c. Pyrogen
 - d. Prostaglandin
 - e. Interferon



Answers:

Molecular and Cell Biology 1 e, 2 d, 3 b, 4 c, 5 c, 6 d, 7 a, 8 e, 9 b, 10 e

Human Physiology 1 e, 2 d, 3 b, 4 a, 5 b, 6 b, 7 a, 8 b, 9 e, 10 b

Human Disease 1 b, 2 c, 3 a, 4 c, 5 b