

## MEDICAL UNIVERSITY - PLEVEN, BULGARIA

**BIOLOGY EXAM Sample Test – v.1****Part A: Multiple Choice Questions**

- 1. Choosing from the following list of connective tissues, which one consists of cells in a fluid matrix?**
  - A. Loose connective tissue.
  - B. Adipose tissue.
  - C. Bone.
  - D. Blood.
- 2. The only major type of tissue specialized for movement is the \_\_\_\_\_ tissue.**
  - A. Nervous.
  - B. Epithelial.
  - C. Muscle.
  - D. Connective.
- 3. The term \_\_\_\_\_ refers to the fact that an epithelial tissue has only one layer of cells.**
  - A. Stratified.
  - B. Cuboidal.
  - C. Simple.
  - D. Squamous.
- 4. The only major type of tissue specialized for protection and secretion is the \_\_\_\_\_ tissue.**
  - A. Nervous.
  - B. Epithelial.
  - C. Muscle.
  - D. Connective.
- 5. What bones is the pectorial girdle made of?**
  - A. Humerus, Ulna and Radius
  - B. Femur and Tibia
  - C. Scapula and Clavicle
  - D. Humerus, Ulna, Radius and Carpals
- 6. Which of the following statements is INCORRECT?**
  - A. Bone is where most blood cells are made.
  - B. Bone is a dry and non-living supportive structure.
  - C. Bone protects and supports the body and its organs.
  - D. Bone serves as a storehouse for various minerals.
- 7. How many transverse processes for attachment of muscles do the vertebrae have?**
  - A. 1
  - B. 2
  - C. 4
  - D. 6
- 8. The Islets of Langerhans are found here:**
  - A. Thyroid gland
  - B. Parathyroid glands
  - C. Pancreas
  - D. Adrenal glands
- 9. The excretory system consists of:**
  - A. Rectum, lungs, skin and kidneys.
  - B. Rectum, liver and kidneys.
  - C. Lungs, liver, skin and kidneys.
- 10. The wastes excreted from the lungs are:**
  - A. Carbon dioxide and excess oxygen.
  - B. Carbon dioxide and nitrogen.
  - C. Water and carbon dioxide.
- 11. The audible sounds that can be heard from the heart are made by the closing of the:**
  - A. Arteries.
  - B. Heart Valves.
  - C. Veins.

12. **The fluid filled sac that surrounds the heart and keeps it contained within the chest cavity is the:**
- A. Pericardium.
  - B. Myocardium.
  - C. Endocardium.
13. **This artery carries de-oxygenated blood from the heart to the lungs.**
- A. Aorta.
  - B. Main Pulmonary Artery.
  - C. Upper Vena Cava.
14. **Which area of the brain regulates the endocrine system?**
- A. Cerebral cortex.
  - B. Thalamus.
  - C. Hypothalamus.
  - D. Pituitary.
15. **Variants of genes are called \_\_\_\_\_ and arise by a process called \_\_\_\_\_ .**
- A. Alleles, mutation.
  - B. Mutants, mutation.
  - C. Recessives, differentiation.
  - D. Chromosomes, mitosis.
16. \_\_\_\_\_ **are the units of heredity.**
- A. Cells.
  - B. Genes.
  - C. Chromosomes.
  - D. Alleles.
17. **In \_\_\_\_\_ , centromeres part and one set of chromosomes is pulled to each end of the cell.**
- A. Prophase.
  - B. Metaphase.
  - C. Anaphase.
  - D. Telophase.
18. **During \_\_\_\_\_ , replicated chromosomes condense, the spindle forms, and the nuclear membrane breaks down.**
- A. Prophase.
  - B. Metaphase.
  - C. Anaphase.
  - D. Telophase.
19. **In \_\_\_\_\_ , chromosomes align down the center of the cell, held by the spindle.**
- A. Prophase.
  - B. Metaphase.
  - C. Anaphase.
  - D. Telophase.
20. **Organelles called \_\_\_\_\_ provide energy from the products of digestion.**
- A. Endoplasmic reticulum.
  - B. Mitochondria.
  - C. Lysosomes.
  - D. Golgi bodies.
21. **The fundamental units of life are:**
- A. Genes.
  - B. Alleles.
  - C. Chromosomes.
  - D. Cells.
22. **All carbohydrates contain carbon, hydrogen and oxygen. All proteins contain carbon, hydrogen, oxygen and what other element?**
- A. Sulphur.
  - B. Nitrogen.
  - C. Fluorine.
  - D. Chlorine.
23. **What substance is stored in the nucleus?**
- A. DNA.
  - B. ATP.
  - C. Enzymes.
  - D. Protein.
24. **In what solution the concentration of dissolved substances outside the cell is higher than the concentration inside the cell?**
- A. Hypotonic solution.
  - B. Isotonic solution.
  - C. Hypertonic solution.
  - D. Osmosis.
25. **Which structure is a thin, flexible barrier around a cell?**
- A. Plasma membrane.
  - B. Cell wall.

- C. Cell envelope.
- D. Cytoplasm.

**26. What is the difference between a prokaryotic cell and an eukaryotic cell?**

- A. The membrane is different.
- B. One doesn't have a nucleus.
- C. One isn't a real cell.
- D. One is only found in plant cells.

**27. What is a cell?**

- A. An animal.
- B. A microscopic structure that is the basic unit of all living things.
- C. A small room.
- D. A small structure that creates living things.

**28. Ribosomes:**

- A. Are synthesized in the nucleus of prokaryotic cells
- B. Are only found in prokaryotic cells
- C. Can be free or bonded to the endoplasmic reticulum
- D. Are only found in eukaryotic cells

**29. The three major types of RNA act together in a process called:**

- A. Replication
- B. Translation
- C. Transcription
- D. Recombination

**30. When is DNA copied?**

- A. Metaphase.
- B. Interphase.
- C. Anaphase.
- D. First phase.

**31. The sugar in RNA is \_\_\_\_\_, the sugar in DNA is \_\_\_\_\_.**

- A. Deoxyribose, ribose.
- B. Ribose, deoxyribose.
- C. Ribose, phosphate.
- D. Ribose, uracil.

**32. If a heterozygous dominant (Ee) parent with brown eyes is crossed with a**

**homozygous dominant (EE) parent with brown eyes, and blue eyes being recessive, the offspring percentages will be \_\_\_\_\_.**

- A. 100% brown eyes
- B. 50% brown eyes, 50% blue eyes
- C. 100% blue eyes
- D. 75% blue eyes, 25% brown eyes

**33. When a dominant allele is present the offspring will show \_\_\_\_\_ characteristics.**

- A. Recessive.
- B. Dominant.
- C. Homozygous.
- D. Heterozygous.

**34. The phenotype displays \_\_\_\_\_ characteristics.**

- A. Chemical.
- B. Dominant.
- C. Recessive.
- D. Physical.

**35. The allele that masks the effects of the other is \_\_\_\_\_ and the masked allele is \_\_\_\_\_.**

- A. Homozygous, heterozygous.
- B. Homozygous, recessive.
- C. Dominant, recessive.
- D. Dominant, incomplete.

**36. What is the most common outcome in the F<sub>2</sub> generation of a cross between a tall plant and a dwarf plant?**

- A. 1 tall : 1 dwarf.
- B. 3 tall : 1 dwarf.
- C. 1 tall : 2 medium : 1 dwarf.
- D. All tall.

**37. Consider the cross AaBb x AaBb. If the alleles for both genes exhibit complete dominance, what genotypic ratio is expected in the resulting offspring?**

- A. 1:1:1:1
- B. 9:3:3:1
- C. 3:6:3:1:2:1
- D. 1:2:1:2:4:2:1:2:1

**38. Meiosis results in:**

- A. Two diploid cells
- B. Two haploid cells
- C. Four haploid cells
- D. Four diploid cells

**39. A heterozygous diploid organism has two \_\_\_\_\_ of a gene.**

- A. identical alleles
- B. maternal molecules

- C. identical codons
- D. different alleles

**40. Which of the following compounds are end products in the Krebs cycle and the respiratory chain?**

- A. Carbon dioxide, water and ATP
- B. Oxalic acid
- C. Citric acid
- D. Simple sugars and amino acids

**Part B: Short Answer Questions**

❖ Write your answers in the space provided for each question!

1. What are the three properties of muscle tissue?
  
  
  
  
  
  
  
  
  
  
2. How are the secretions of endocrine glands called?
  
  
  
  
  
  
  
  
  
  
3. Name the molecule that delivers the amino acids to the place of protein synthesis.
  
  
  
  
  
  
  
  
  
  
4. Name an organelle which serves as a primary packaging area for molecules that will be distributed throughout the cell?
  
  
  
  
  
  
  
  
  
  
5. Round seeds are dominant to wrinkled seeds. What is the phenotype for a homozygous recessive offspring?