



Pro Genius Forces Academy

Free Academic Notes by Pro Genius Students, founded by Sir Waqas Asghar

Biology MCQs

For Preparation Whatsapp Contact Link: 

<https://wa.me/923334694332>

1. Which enzyme is primarily responsible for relieving supercoiling tension ahead of the replication fork?

- A. DNA helicase
- B. DNA ligase
- C. **Topoisomerase I**
- D. Primase

2. In eukaryotic cells, the majority of ATP during aerobic respiration is produced during:

- A. Glycolysis
- B. Krebs cycle
- C. **Electron transport chain**
- D. Fermentation

3. Which of the following amino acids is most likely to be found in the interior of a globular protein?

- A. Lysine
- B. Aspartic acid
- C. **Valine**
- D. Arginine

4. The movement of water across a semipermeable membrane against its concentration gradient requires:



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- A. Diffusion
- B. Osmosis
- C. **Active transport**
- D. Facilitated diffusion

5. During which phase of mitosis do sister chromatids separate?

- A. Prophase
- B. Metaphase
- C. **Anaphase**
- D. Telophase

6. The lac operon in *E. coli* is activated when:

- A. Lactose is absent and glucose is high
- B. **Lactose is present and glucose is low**
- C. Lactose and glucose are both high
- D. Lactose is absent and glucose is low

7. Which structure is responsible for detoxification in liver cells?

- A. Rough ER
- B. **Smooth ER**
- C. Golgi apparatus
- D. Lysosome

8. A frameshift mutation results from:

- A. Substitution of one base pair
- B. **Deletion or insertion not in multiples of three**
- C. Inversion of a chromosome segment
- D. Duplication of a gene

9. Which hormone increases blood calcium levels?

- A. Calcitonin
- B. **Parathyroid hormone**



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- C. Insulin
- D. Thyroxine

10. The Bohr effect describes:

- A. Increased O_2 affinity at high pH
- B. **Reduced hemoglobin affinity for O_2 at low pH**
- C. CO_2 binding to hemoglobin
- D. Oxygen saturation in lungs

11. Which phase of the cell cycle is longest in most human cells?

- A. M phase
- B. G2 phase
- C. **G1 phase**
- D. S phase

12. Crossing over occurs during:

- A. Prophase I
- B. Metaphase I
- C. Prophase II
- D. Telophase I

Answer: A

13. Which molecule acts as the final electron acceptor in the electron transport chain?

- A. NAD^+
- B. FAD
- C. Carbon dioxide
- D. **Oxygen**

14. A competitive inhibitor affects enzyme activity by:

- A. Binding to the allosteric site
- B. Denaturing the enzyme



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C. **Competing with substrate for the active site**

D. Increasing V_{max}

15. Which blood vessel has the highest blood pressure?

A. Veins

B. Capillaries

C. Venules

D. **Aorta**

16. The genetic code is described as “degenerate” because:

A. It is universal

B. It has start and stop codons

C. **Multiple codons code for the same amino acid**

D. It changes frequently

17. In plants, the light-independent reactions occur in the:

A. Thylakoid membrane

B. **Stroma**

C. Grana

D. Cytoplasm

18. Which immune cells are primarily responsible for antibody production?

A. T helper cells

B. Cytotoxic T cells

C. Macrophages

D. **B lymphocytes**

19. Which gas law explains oxygen loading in the lungs?

A. Boyle's law

B. Charles' law

C. **Henry's law**

D. Dalton's law



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20. The sodium-potassium pump moves:

- A. 2 Na⁺ out, 3 K⁺ in
- B. **3 Na⁺ out, 2 K⁺ in**
- C. 3 Na⁺ in, 2 K⁺ out
- D. Equal Na⁺ and K⁺ ions

21. Which vitamin is essential for blood clotting?

- A. Vitamin A
- B. Vitamin C
- C. **Vitamin K**
- D. Vitamin D

22. The function of tRNA is to:

- A. Carry genetic information
- B. Form ribosomes
- C. **Bring amino acids to ribosomes**
- D. Replicate DNA

23. Which part of the nephron is most permeable to water?

- A. Ascending limb of loop of Henle
- B. Distal convoluted tubule
- C. **Descending limb of loop of Henle**
- D. Collecting duct

24. Genetic drift has the greatest effect in:

- A. Large populations
- B. **Small populations**
- C. Populations with high mutation rate
- D. Populations under strong selection

25. Which molecule directly triggers muscle contraction?



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- A. ATP
- B. Sodium
- C. Potassium
- D. **Calcium ions (Ca^{2+})**

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