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CLASS 11

Biology

Sample Paper 3 - Questions

33 questions | 70 marks | 2026-27

Time: 3 hours. Answer all questions and subparts unless a choice is stated. Marks are shown on the right. Write answers on separate sheets. Independently prepared practice paper.

Section A - Objective questions

1. Which statement correctly describes Bryophytes? **1**

(A) Small nonvascular plants generally depend on water for sexual reproduction.

(B) A biological catalyst increases reaction rate without being consumed in the overall reaction.

(C) Glucose is converted to pyruvate through a cytoplasmic sequence with a net ATP gain.

(D) A cell lacks a membrane-bound nucleus and typical membrane-bound organelles.

2. Identify the term described by this statement: A biological catalyst increases reaction rate without being consumed in the overall reaction. **1**

(A) Ultrafiltration

(B) Bryophytes

(C) Sliding filament mechanism

(D) Enzyme

3. Which statement correctly describes Epithelial tissue? **1**

(A) A cell lacks a membrane-bound nucleus and typical membrane-bound organelles.

(B) A scientific species name combines the genus with a specific epithet.

(C) Closely arranged cells cover surfaces, line cavities and perform specialised functions.

(D) The relation between oxygen partial pressure and haemoglobin saturation is typically sigmoid.

4. Identify the term described by this statement: A junction permits communication from one neuron to another cell. **1**

(A) Binomial nomenclature

(B) Mitosis

(C) Synapse

(D) Homeostasis

5. Which statement correctly describes Homeostasis? **1**

(A) A junction permits communication from one neuron to another cell.

(B) Regulatory processes maintain relatively stable internal conditions.

(C) Seed plants bear ovules and seeds without an enclosing ovary or fruit.

(D) Two successive divisions after one DNA replication reduce chromosome number and generate variation.

6. Identify the term described by this statement: A nuclear division generally maintains chromosome number in daughter nuclei. **1**

(A) Mitosis

(B) Photorespiration

(C) Insulin

(D) Double circulation

7. Identify the term described by this statement: Pressure-driven filtration at the glomerulus forms a filtrate from blood plasma. **1**

(A) Ultrafiltration

(B) Viruses

(C) Calvin cycle

(D) Homeostasis

8. Identify the term described by this statement: Living organisms are classified through nested ranks from broad groups to species. **1**

(A) Mitosis
(B) Ultrafiltration
(C) Binomial nomenclature
(D) Taxonomic hierarchy

9. Identify the term described by this statement: The shoot apex can suppress growth of lateral buds through hormonal regulation. **1**

(A) Taxonomic hierarchy
(B) Apical dominance
(C) Mitosis
(D) Enzyme

10. Which statement correctly describes Binomial nomenclature? **1**

(A) Living organisms are classified through nested ranks from broad groups to species.
(B) A scientific species name combines the genus with a specific epithet.
(C) Two successive divisions after one DNA replication reduce chromosome number and generate variation.
(D) Small nonvascular plants generally depend on water for sexual reproduction.

11. Identify the term described by this statement: A pancreatic hormone promotes lowering of blood glucose through its actions on target tissues. **1**

(A) Prokaryotic cell
(B) Calvin cycle
(C) Viruses
(D) Insulin

12. Which statement correctly describes Gymnosperms? **1**

(A) Two successive divisions after one DNA replication reduce chromosome number and generate variation.
(B) Seed plants bear ovules and seeds without an enclosing ovary or fruit.
(C) A pancreatic hormone promotes lowering of blood glucose through its actions on target tissues.
(D) A nucleotide polymer stores or transfers genetic information.

13. Which statement correctly describes Calvin cycle? **1**

(A) Seed plants bear ovules and seeds without an enclosing ovary or fruit.

(B) A junction permits communication from one neuron to another cell.

(C) A scientific species name combines the genus with a specific epithet.

(D) Carbon fixation reactions use ATP and reducing power to form organic compounds.

14. Identify the term described by this statement: The relation between oxygen partial pressure and haemoglobin saturation is typically sigmoid. **1**

(A) Calvin cycle

(B) Mitosis

(C) Oxygen dissociation curve

(D) Gymnosperms

15. Which statement correctly describes Sliding filament mechanism? **1**

(A) Seed plants bear ovules and seeds without an enclosing ovary or fruit.

(B) Carbon fixation reactions use ATP and reducing power to form organic compounds.

(C) Muscle contraction involves actin and myosin filaments sliding relative to one another.

(D) Rubisco's oxygenation activity initiates a pathway that can reduce photosynthetic efficiency.

16. Identify the term described by this statement: A cell lacks a membrane-bound nucleus and typical membrane-bound organelles. **1**

(A) Meiosis

(B) Prokaryotic cell

(C) Epithelial tissue

(D) Double circulation

Section B - Short responses

17. Compare Double circulation and Homeostasis. Give the meaning and an appropriate application of each. **2**

18. Compare Viruses and Prokaryotic cell. Give the meaning and an appropriate application of each. 2

19. Compare Photorespiration and Calvin cycle. Give the meaning and an appropriate application of each. 2

20. Compare Nucleic acid and Enzyme. Give the meaning and an appropriate application of each. 2

21. Compare Glycolysis and Insulin. Give the meaning and an appropriate application of each. 2

Section C - Short responses

22. Explain how the following example illustrates Meiosis: A diploid reproductive cell ultimately produces haploid products. 3

23. Compare Synapse and Taxonomic hierarchy. Give the meaning and an appropriate application of each. 3

24. Explain how the following example illustrates Calvin cycle: Carbon dioxide enters a series of reactions in the chloroplast stroma. 3

25. Explain how the following example illustrates Oxygen dissociation curve: Cooperative binding supports oxygen loading in lungs and unloading in tissues. 3

26. Compare Taxonomic hierarchy and Binomial nomenclature. Give the meaning and an appropriate application of each. 3

27. Compare Bryophytes and Gymnosperms. Give the meaning and an appropriate application of each. 3

28. Compare Gymnosperms and Bryophytes. Give the meaning and an appropriate application of each. 3

Section D - Case and application questions

29. Consider this situation: Sarcomeres shorten without the individual filaments themselves shortening.

(a) Name the concept demonstrated in the case. **1**

(b) Explain the connection between the situation and that concept. **1**

(c) Distinguish that concept from Prokaryotic cell, giving an appropriate feature of each. **2**

30. Consider this situation: High temperature and low internal carbon dioxide favour an oxygenation reaction.

(a) Name the concept demonstrated in the case. **1**

(b) Explain the connection between the situation and that concept. **1**

(c) Distinguish that concept from Calvin cycle, giving an appropriate feature of each. **2**

Section E - Extended responses

31. (a) Explain Glycolysis and analyse this application: A cell begins glucose breakdown before aerobic oxidation of pyruvate. **5**
(b) Explain Insulin and show how this second application fits it: Increased glucose uptake and storage contribute to regulation after a meal.

32. (a) Explain Double circulation and analyse this application: Oxygenated and deoxygenated blood are kept functionally separate in a four-chambered heart. **5**
(b) Explain Homeostasis and show how this second application fits it: Feedback systems help control body temperature or blood composition.

33. (a) Explain Ultrafiltration and analyse this application: Blood cells and most large proteins remain within the glomerular circulation. **5**

(b) Explain Taxonomic hierarchy and show how this second application fits it: A species belongs to a genus, which belongs to a family.

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