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CLASS 11

Biology

Sample Paper 5 - 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 concept is illustrated in this example? High temperature and low internal carbon dioxide favour an oxygenation reaction. **1**

(A) Viruses
(B) Photorespiration
(C) Homeostasis
(D) Oxygen dissociation curve

2. Which statement correctly describes Oxygen dissociation curve? **1**

(A) Closely arranged cells cover surfaces, line cavities and perform specialised functions.
(B) The relation between oxygen partial pressure and haemoglobin saturation is typically sigmoid.
(C) Small nonvascular plants generally depend on water for sexual reproduction.
(D) Pressure-driven filtration at the glomerulus forms a filtrate from blood plasma.

3. Which statement correctly describes Glycolysis? **1**

(A) A scientific species name combines the genus with a specific epithet.
(B) A junction permits communication from one neuron to another cell.
(C) A nucleotide polymer stores or transfers genetic information.
(D) Glucose is converted to pyruvate through a cytoplasmic sequence with a net ATP gain.

4. Which concept is illustrated in this example? Seeds develop on the scales of a cone. **1**

(A) Meiosis
(B) Oxygen dissociation curve
(C) Gymnosperms
(D) Homeostasis

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

(A) Living organisms are classified through nested ranks from broad groups to species.
(B) Acellular infectious entities reproduce using host-cell machinery.
(C) A nucleotide polymer stores or transfers genetic information.
(D) Muscle contraction involves actin and myosin filaments sliding relative to one another.

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

(A) Acellular infectious entities reproduce using host-cell machinery.
(B) Regulatory processes maintain relatively stable internal conditions.
(C) A nuclear division generally maintains chromosome number in daughter nuclei.
(D) A scientific species name combines the genus with a specific epithet.

7. Which concept is illustrated in this example? A neurotransmitter carries a signal across a chemical synaptic cleft. **1**

(A) Synapse
(B) Gymnosperms
(C) Nucleic acid
(D) Meiosis

8. Which concept is illustrated in this example? DNA carries inherited information and RNA participates in its expression. **1**

(A) Nucleic acid
(B) Enzyme
(C) Photorespiration
(D) Sliding filament mechanism

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

(A) Pulmonary and systemic circuits send blood through the heart twice per complete circuit.

(B) Pressure-driven filtration at the glomerulus forms a filtrate from blood plasma.

(C) The shoot apex can suppress growth of lateral buds through hormonal regulation.

(D) Regulatory processes maintain relatively stable internal conditions.

10. Which concept is illustrated in this example? A growing root produces new cells with the same chromosome number. **1**

(A) Taxonomic hierarchy

(B) Apical dominance

(C) Mitosis

(D) Ultrafiltration

11. Which concept is illustrated in this example? A diploid reproductive cell ultimately produces haploid products. **1**

(A) Gymnosperms

(B) Double circulation

(C) Ultrafiltration

(D) Meiosis

12. Which concept is illustrated in this example? Oxygenated and deoxygenated blood are kept functionally separate in a four-chambered heart. **1**

(A) Enzyme

(B) Double circulation

(C) Nucleic acid

(D) Prokaryotic cell

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

(A) Pulmonary and systemic circuits send blood through the heart twice per complete circuit.

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

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

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

14. Which statement correctly describes Insulin? 1

(A) Regulatory processes maintain relatively stable internal conditions.

(B) Acellular infectious entities reproduce using host-cell machinery.

(C) A pancreatic hormone promotes lowering of blood glucose through its actions on target tissues.

(D) Pulmonary and systemic circuits send blood through the heart twice per complete circuit.

15. Which statement correctly describes Taxonomic hierarchy? 1

(A) Pulmonary and systemic circuits send blood through the heart twice per complete circuit.

(B) A nuclear division generally maintains chromosome number in daughter nuclei.

(C) Living organisms are classified through nested ranks from broad groups to species.

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

16. Which statement correctly describes Ultrafiltration? 1

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

(B) A nuclear division generally maintains chromosome number in daughter nuclei.

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

(D) Pressure-driven filtration at the glomerulus forms a filtrate from blood plasma.

Section B - Short responses

17. Compare Epithelial tissue and Mitosis. Give the meaning and an appropriate application of each. 2

18. Compare Sliding filament mechanism and Prokaryotic cell. Give the meaning and an appropriate application of each. 2

19. Use this situation to explain Apical dominance, connecting the definition to the details: Removing a shoot tip can permit branching from lateral buds. 2

20. Use this situation to explain Bryophytes, connecting the definition to the details: Motile male gametes reach the egg through a film of water. 2

21. Use this situation to explain Prokaryotic cell, connecting the definition to the details: A bacterium contains its genetic material without a nuclear envelope. 2

Section C - Short responses

22. Compare Enzyme and Nucleic acid. Give the meaning and an appropriate application of each. 3

23. Use this situation to explain Mitosis, connecting the definition to the details: A growing root produces new cells with the same chromosome number. 3

24. Compare Calvin cycle and Photorespiration. Give the meaning and an appropriate application of each. 3

25. Compare Glycolysis and Insulin. Give the meaning and an appropriate application of each. 3

26. Compare Meiosis and Mitosis. Give the meaning and an appropriate application of each. 3

27. Compare Photorespiration and Calvin cycle. Give the meaning and an appropriate application of each. 3

28. Compare Oxygen dissociation curve and Apical dominance. Give the meaning and an appropriate application of each. 3

Section D - Case and application questions

29. Consider this situation: DNA carries inherited information and RNA participates in its expression.

(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 Enzyme, giving an appropriate feature of each. 2

30. Consider this situation: Blood cells and most large proteins remain within the glomerular circulation.

(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 Taxonomic hierarchy, giving an appropriate feature of each. 2

Section E - Extended responses

31. (a) Explain Gymnosperms and analyse this application: Seeds develop on the scales of a cone. 5
(b) Explain Bryophytes and show how this second application fits it: Motile male gametes reach the egg through a film of water.

32. (a) Explain Synapse and analyse this application: A neurotransmitter carries a signal across a chemical synaptic cleft. 5
(b) Explain Taxonomic hierarchy and show how this second application fits it: A species belongs to a genus, which belongs to a family.

33. (a) Explain Epithelial tissue and analyse this application: An epithelial lining protects or assists absorption in an organ. 5
(b) Explain Mitosis and show how this second application fits it: A growing root produces new cells with the same chromosome number.

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