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CLASS 11

Biology

Sample Paper 1 - 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 best explains the following situation? Feedback systems help control body temperature or blood composition. 1
(A) Homeostasis (B) Nucleic acid (C) Taxonomic hierarchy (D) Apical dominance

2. Which concept best explains the following situation? Increased glucose uptake and storage contribute to regulation after a meal. 1
(A) Insulin (B) Nucleic acid (C) Apical dominance (D) Taxonomic hierarchy

3. Which concept best explains the following situation? A neurotransmitter carries a signal across a chemical synaptic cleft. 1
(A) Taxonomic hierarchy (B) Apical dominance (C) Synapse (D) Nucleic acid

4. Which concept best explains the following situation? Sarcomeres shorten without the individual filaments themselves shortening. 1
(A) Sliding filament mechanism (B) Taxonomic hierarchy (C) Nucleic acid (D) Apical dominance

5. Which concept best explains the following situation? Blood cells and most large proteins remain within the glomerular circulation. 1
(A) Ultrafiltration (B) Apical dominance (C) Nucleic acid (D) Taxonomic hierarchy

6. Which concept best explains the following situation? Oxygenated and deoxygenated blood are kept functionally separate in a four-chambered heart. 1
(A) Apical dominance (B) Double circulation (C) Nucleic acid (D) Taxonomic hierarchy

7. Which concept best explains the following situation? Cooperative binding supports oxygen loading in lungs and unloading in tissues. 1
(A) Nucleic acid (B) Apical dominance (C) Taxonomic hierarchy (D) Oxygen dissociation curve

8. Which concept best explains the following situation? Removing a shoot tip can permit branching from lateral buds. 1
(A) Oxygen dissociation curve (B) Nucleic acid (C) Apical dominance (D) Taxonomic hierarchy

9. Which concept best explains the following situation? A cell begins glucose breakdown before aerobic oxidation of pyruvate. 1
(A) Nucleic acid (B) Oxygen dissociation curve (C) Glycolysis (D) Taxonomic hierarchy

10. Which concept best explains the following situation? High temperature and low internal carbon dioxide favour an oxygenation reaction. 1
(A) Oxygen dissociation curve (B) Nucleic acid (C) Taxonomic hierarchy (D) Photorespiration

11. Which concept best explains the following situation? Carbon dioxide enters a series of reactions in the chloroplast stroma. 1
(A) Nucleic acid (B) Taxonomic hierarchy (C) Oxygen dissociation curve (D) Calvin cycle

12. Which concept best explains the following situation? A diploid reproductive cell ultimately produces haploid products. 1
(A) Taxonomic hierarchy (B) Nucleic acid (C) Meiosis (D) Oxygen dissociation curve

13. Which concept best explains the following situation? A growing root produces new cells with the same chromosome number. 1
(A) Nucleic acid (B) Oxygen dissociation curve (C) Taxonomic hierarchy (D) Mitosis

14. Which concept best explains the following situation? An enzyme binds an appropriate substrate at its active site. 1
(A) Enzyme (B) Oxygen dissociation curve (C) Taxonomic hierarchy (D) Nucleic acid

15. Which concept best explains the following situation? DNA carries inherited information and RNA participates in its expression. 1
(A) Taxonomic hierarchy (B) Nucleic acid (C) Oxygen dissociation curve (D) Enzyme

16. Which concept best explains the following situation? An epithelial lining protects or assists absorption in an organ. 1
(A) Enzyme (B) Taxonomic hierarchy (C) Epithelial tissue (D) Oxygen dissociation curve

Section B - Short responses

17. Identify and explain the concept illustrated here: Feedback systems help control body temperature or blood composition. Give a further suitable illustration. 2

18. Identify and explain the concept illustrated here: Increased glucose uptake and storage contribute to regulation after a meal. Give a further suitable illustration. 2

19. Identify and explain the concept illustrated here: A neurotransmitter carries a signal across a chemical synaptic cleft. Give a further suitable illustration. 2

20. Identify and explain the concept illustrated here: Sarcomeres shorten without the individual filaments themselves shortening. Give a further suitable illustration. 2

21. Identify and explain the concept illustrated here: Blood cells and most large proteins remain within the glomerular circulation. Give a further suitable illustration. 2

Section C - Short responses

22. Identify and explain the concept illustrated here: Oxygenated and deoxygenated blood are kept functionally separate in a four-chambered heart. Give a further suitable illustration. 3

23. Identify and explain the concept illustrated here: Cooperative binding supports oxygen loading in lungs and unloading in tissues. Give a further suitable illustration. 3

24. Identify and explain the concept illustrated here: Removing a shoot tip can permit branching from lateral buds. Give a further suitable illustration. 3

25. Identify and explain the concept illustrated here: A cell begins glucose breakdown before aerobic oxidation of pyruvate. Give a further suitable illustration. 3

26. Identify and explain the concept illustrated here: High temperature and low internal carbon dioxide favour an oxygenation reaction. Give a further suitable illustration. 3

27. Identify and explain the concept illustrated here: Carbon dioxide enters a series of reactions in the chloroplast stroma. Give a further suitable illustration. 3

28. Identify and explain the concept illustrated here: A diploid reproductive cell ultimately produces haploid products. Give a further suitable illustration. 3

Section D - Case and application questions

29. Consider the application below: Feedback systems help control body temperature or blood composition.

(a) Name the relevant concept. 1

(b) Explain why it applies. 1

(c) Explain Taxonomic hierarchy with a suitable example. 2

30. Consider the application below: Increased glucose uptake and storage contribute to regulation after a meal.

(a) Name the relevant concept. 1

(b) Explain why it applies. 1

(c) Explain Homeostasis with a suitable example. 2

Section E - Extended responses

31. (a) Analyse Homeostasis with reference to this application: Feedback systems help control body temperature or blood composition. 5
(b) Explain Binomial nomenclature with a different relevant example. Develop the reasoning behind both parts.

32. (a) Analyse Calvin cycle with reference to this application: Carbon dioxide enters a series of reactions in the chloroplast stroma. 5
(b) Explain Glycolysis with a different relevant example. Develop the reasoning behind both parts.

33. (a) Analyse Nucleic acid with reference to this application: DNA carries inherited information and RNA participates in its expression. 5
(b) Explain Mitosis with a different relevant example. Develop the reasoning behind both parts.

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