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CLASS 12

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? A seed bank stores genetic resources under controlled conditions. **1**
(A) Microsporogenesis (B) Ex situ conservation (C) Biological control (D) Codominance

2. Which concept best explains the following situation? Conservation priorities consider both unique species and threat. **1**
(A) Biological control (B) Codominance (C) Microsporogenesis (D) Biodiversity hotspot

3. Which concept best explains the following situation? Less energy reaches secondary consumers than the producer level captures. **1**
(A) Energy pyramid (B) Codominance (C) Microsporogenesis (D) Biological control

4. Which concept best explains the following situation? A pollinator receives a food resource while helping a flowering plant reproduce. **1**
(A) Mutualism (B) Codominance (C) Biological control (D) Microsporogenesis

5. Which concept best explains the following situation? Logistic growth slows as resource limitations become stronger. **1**
(A) Microsporogenesis (B) Biological control (C) Carrying capacity (D) Codominance

6. Which concept best explains the following situation? Engineered microorganisms contribute to manufacturing human insulin. (A) Recombinant insulin (B) Microsporogenesis (C) Codominance (D) Biological control 1

7. Which concept best explains the following situation? A small amount of target DNA is copied through denaturation, annealing and extension cycles. (A) Polymerase chain reaction (B) Biological control (C) Codominance (D) Microsporogenesis 1

8. Which concept best explains the following situation? A DNA fragment is prepared with ends compatible with a vector. (A) Biological control (B) Restriction endonuclease (C) Codominance (D) Microsporogenesis 1

9. Which concept best explains the following situation? A natural predator reduces a crop pest population. (A) Codominance (B) Restriction endonuclease (C) Microsporogenesis (D) Biological control 1

10. Which concept best explains the following situation? A later encounter can produce a faster and stronger specific response. (A) Restriction endonuclease (B) Codominance (C) Vaccination (D) Microsporogenesis 1

11. Which concept best explains the following situation? A population without selection, mutation, migration or drift follows the equilibrium model. (A) Codominance (B) Restriction endonuclease (C) Hardy-Weinberg equilibrium (D) Microsporogenesis 1

12. Which concept best explains the following situation? Antibiotic treatment can favour resistant bacteria already present or arising by mutation. (A) Restriction endonuclease (B) Codominance (C) Microsporogenesis (D) Natural selection 1

13. Which concept best explains the following situation? An inducer reduces the repressor's ability to block transcription under suitable conditions. (A) Codominance (B) Microsporogenesis (C) Restriction endonuclease (D) Lac operon 1

14. Which concept best explains the following situation? tRNAs deliver amino acids in the order specified by codons. 1
(A) Microsporogenesis (B) Codominance (C) Translation (D) Restriction endonuclease

15. Which concept best explains the following situation? A gene's information is copied into an RNA molecule. 1
(A) Codominance (B) Restriction endonuclease (C) Microsporogenesis (D) Transcription

16. Which concept best explains the following situation? Nearby loci can show relatively few recombinant offspring. 1
(A) Linkage (B) Restriction endonuclease (C) Microsporogenesis (D) Codominance

Section B - Short responses

17. Identify and explain the concept illustrated here: A seed bank stores genetic resources under controlled conditions. Give a further suitable illustration. 2

18. Identify and explain the concept illustrated here: Conservation priorities consider both unique species and threat. Give a further suitable illustration. 2

19. Identify and explain the concept illustrated here: Less energy reaches secondary consumers than the producer level captures. Give a further suitable illustration. 2

20. Identify and explain the concept illustrated here: A pollinator receives a food resource while helping a flowering plant reproduce. Give a further suitable illustration. 2

21. Identify and explain the concept illustrated here: Logistic growth slows as resource limitations become stronger. Give a further suitable illustration. 2

Section C - Short responses

22. Identify and explain the concept illustrated here: Engineered microorganisms contribute to manufacturing human insulin. Give a further suitable illustration. **3**

23. Identify and explain the concept illustrated here: A small amount of target DNA is copied through denaturation, annealing and extension cycles. Give a further suitable illustration. **3**

24. Identify and explain the concept illustrated here: A DNA fragment is prepared with ends compatible with a vector. Give a further suitable illustration. **3**

25. Identify and explain the concept illustrated here: A natural predator reduces a crop pest population. Give a further suitable illustration. **3**

26. Identify and explain the concept illustrated here: A later encounter can produce a faster and stronger specific response. Give a further suitable illustration. **3**

27. Identify and explain the concept illustrated here: A population without selection, mutation, migration or drift follows the equilibrium model. Give a further suitable illustration. **3**

28. Identify and explain the concept illustrated here: Antibiotic treatment can favour resistant bacteria already present or arising by mutation. Give a further suitable illustration. **3**

Section D - Case and application questions

29. Consider the application below: A seed bank stores genetic resources under controlled conditions.

(a) Name the relevant concept. **1**

(b) Explain why it applies. **1**

(c) Explain Microsporogenesis with a suitable example. **2**

30. Consider the application below: Conservation priorities consider both unique species and threat.

(a) Name the relevant concept. 1

(b) Explain why it applies. 1

(c) Explain Ex situ conservation with a suitable example. 2

Section E - Extended responses

31. (a) Analyse Ex situ conservation with reference to this application: A seed bank stores genetic resources under controlled conditions. 5
(b) Explain Double fertilisation with a different relevant example. Develop the reasoning behind both parts.

32. (a) Analyse Natural selection with reference to this application: Antibiotic treatment can favour resistant bacteria already present or arising by mutation. 5
(b) Explain Vaccination with a different relevant example. Develop the reasoning behind both parts.

33. (a) Analyse Linkage with reference to this application: Nearby loci can show relatively few recombinant offspring. 5
(b) Explain Translation with a different relevant example. Develop the reasoning behind both parts.

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