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CLASS 12

Biology

Sample Paper 2 - 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. Select the term described below. Diploid microspore mother cells undergo meiosis to produce haploid microspores. **1**
(A) Linkage (B) Restriction endonuclease (C) Microsporogenesis (D) Double fertilisation

2. Select the term described below. One sperm fuses with the egg and another with the central cell in angiosperms. **1**
(A) Restriction endonuclease (B) Double fertilisation (C) Microsporogenesis (D) Linkage

3. Select the term described below. Seeds form without the usual process of sexual fertilisation. **1**
(A) Microsporogenesis (B) Linkage (C) Restriction endonuclease (D) Apomixis

4. Select the term described below. The blastocyst attaches to and becomes embedded in the uterine endometrium. **1**
(A) Linkage (B) Restriction endonuclease (C) Microsporogenesis (D) Implantation

5. Select the term described below. An interface supports exchange between maternal and foetal systems and secretes hormones. **1**
(A) Placenta (B) Microsporogenesis (C) Restriction endonuclease (D) Linkage

6. Select the term described below. Paired alleles separate during gamete formation. 1
(A) Restriction endonuclease (B) Microsporogenesis (C) Segregation (D) Linkage

7. Select the term described below. A heterozygote has a phenotype intermediate between the two homozygotes. 1
(A) Incomplete dominance (B) Microsporogenesis (C) Restriction endonuclease (D) Linkage

8. Select the term described below. Both alleles are expressed in the heterozygous phenotype. 1
(A) Restriction endonuclease (B) Microsporogenesis (C) Linkage (D) Codominance

9. Select the term described below. Genes on the same chromosome can be inherited together more often than expected under independent assortment. 1
(A) Restriction endonuclease (B) Microsporogenesis (C) Codominance (D) Linkage

10. Select the term described below. RNA is synthesised from a DNA template. 1
(A) Microsporogenesis (B) Restriction endonuclease (C) Transcription (D) Codominance

11. Select the term described below. Ribosomes use an mRNA sequence to direct polypeptide synthesis. 1
(A) Translation (B) Microsporogenesis (C) Codominance (D) Restriction endonuclease

12. Select the term described below. An inducible bacterial regulatory system coordinates genes for lactose metabolism. 1
(A) Lac operon (B) Codominance (C) Microsporogenesis (D) Restriction endonuclease

13. Select the term described below. Heritable variants with different reproductive success can change in frequency across generations. 1
(A) Natural selection (B) Microsporogenesis (C) Restriction endonuclease (D) Codominance

14. Select the term described below. Allele and genotype frequencies remain stable under specified ideal population assumptions.
(A) Hardy-Weinberg equilibrium (B) Microsporogenesis (C) Codominance (D) Restriction endonuclease 1

15. Select the term described below. Exposure to suitable antigens develops adaptive immune memory.
(A) Codominance (B) Microsporogenesis (C) Restriction endonuclease (D) Vaccination 1

16. Select the term described below. Living organisms help manage pests or pathogens.
(A) Microsporogenesis (B) Codominance (C) Restriction endonuclease (D) Biological control 1

Section B - Short responses

17. Define Microsporogenesis and illustrate it with a relevant example. 2

18. Define Double fertilisation and illustrate it with a relevant example. 2

19. Define Apomixis and illustrate it with a relevant example. 2

20. Define Implantation and illustrate it with a relevant example. 2

21. Define Placenta and illustrate it with a relevant example. 2

Section C - Short responses

22. Define Segregation and illustrate it with a relevant example. 3

23. Define Incomplete dominance and illustrate it with a relevant example. 3

24. Define Codominance and illustrate it with a relevant example. 3

25. Define Linkage and illustrate it with a relevant example. 3

26. Define Transcription and illustrate it with a relevant example. 3

27. Define Translation and illustrate it with a relevant example. 3

28. Define Lac operon and illustrate it with a relevant example. 3

Section D - Case and application questions

29. Consider the following case: An anther develops pollen precursors through reduction division.

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

(b) Explain how the details of the case support your choice. 1

(c) Explain Implantation with another appropriate example. 2

30. Consider the following case: A diploid zygote and a usually triploid primary endosperm nucleus form.

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

(b) Explain how the details of the case support your choice. 1

(c) Explain Placenta with another appropriate example. 2

Section E - Extended responses

31. Explain double fertilisation in angiosperms and state the ploidy of the zygote and primary endosperm nucleus. 5

32. Explain a monohybrid cross between two heterozygous pea plants (Tt x Tt), including gametes, genotype ratio, phenotype ratio and segregation. 5

33. Describe briefly gene expression from a DNA coding sequence to a polypeptide. Include transcription, mRNA, codons, tRNA and ribosomes. 5

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