CBSE Class 12 Biology 2026 - Set 57/7/2 - Compartment

Question Paper

Conducted by the Central Board of Secondary Education (CBSE)

Time Allowed: 3 Hours **Maximum Marks: 70**

General Instructions

(i) This question paper contains 33 questions. All questions are compulsory.

(ii) Question paper is divided into five sections – Sections A, B, C, D and E.

(iii) Section A – questions number 1 to 16 are Multiple Choice Type Questions. Each question carries 1 mark.

(iv) Section B – questions number 17 to 21 are Very Short Answer Type Questions. Each question carries 2 marks.

(v) Section C – questions number 22 to 28 are Short Answer Type Questions. Each question carries 3 marks.

(vi) Section D – questions number 29 and 30 are Case-Based questions. Each question carries 4 marks. Each question has subparts with internal choice in one of the subparts.

(vii) Section E – questions number 31 to 33 are Long Answer Type Questions. Each question carries 5 marks.

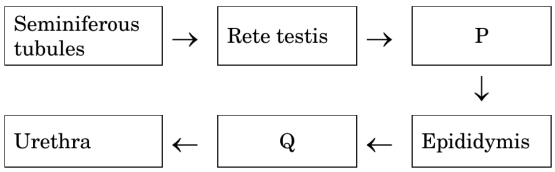
(viii) There is no overall choice. However, an internal choice has been provided in Sections B, D and E of the question paper. A candidate has to write answer for only one of the alternatives in such questions.

(ix) Kindly note that there is a separate question paper for Visually Impaired candidates.

(x) Wherever necessary, neat and properly labelled diagrams should be drawn.

Section A

1. The path of the sperm transport is shown below. Identify P and Q and select the correct option.



(A) P – Vasa efferentia, Q – Ureter
(B) P – Ejaculatory duct, Q – Vas deferens
(C) P – Vasa efferentia, Q – Vas deferens
(D) P – Vas deferens, Q – Vasa efferentia

2. Failure of segregation of chromatids during cell division results in gain or loss of chromosomes. Select the correct option.

(A) Euploidy
(B) Monoploidy
(C) Aneuploidy
(D) Polyploidy

3. Polyembryony commonly occurs in which one of the following plants?

(A) Banana
(B) Tomato
(C) Potato
(D) Citrus

4. Choose the right option that indicates the safe period for medical termination of pregnancy.

(A) Second trimester of pregnancy
(B) 12 weeks of pregnancy
(C) 5 months of pregnancy
(D) 21 weeks of pregnancy

5. When an amino acid is coded by more than one codon, the genetic code is said to be :

(A) Universal
(B) Punctuated
(C) Commaless
(D) Degenerate

6. Miller's experiment included some gases in his experiment. Which of the following gas was *not* part of his experiment?

(A) Methane
(B) Hydrogen
(C) Ammonia
(D) Carbon dioxide

7. Polio vaccine provides which kind of immunity in children? Select the correct option.

(A) Innate immunity
(B) Passive immunity
(C) Autoimmunity
(D) Active immunity

8. A person admitted to hospital as he had myocardial infarction. A cardiologist injected him 'streptokinase'. Select the option that indicates the correct reason for using streptokinase.

(A) It stimulates the heartbeat.
(B) It reduces hypertension.
(C) It acts as a clot-buster.
(D) It reduces the level of blood cholesterol.

9. Significance of heat shock method in bacterial transformation is to facilitate which one of the following steps?

(A) Binding DNA to the cell wall
(B) Uptake of DNA through membrane transport proteins
(C) Uptake of DNA through transient pores in the bacterial cell wall
(D) Expression of antibiotic resistance genes

10. Cry proteins coded by the gene Cry IAb controls which one of the following pests?

(A) Cotton bollworm
(B) Corn borer
(C) Tobacco budworm
(D) Mosquito

11. In spite of interspecific competition in nature, which of the following mechanisms might competing species have evolved to coexist and survive?

(A) Competitive exclusion
(B) Competitive release
(C) Resource partitioning
(D) Co-evolution

12. Which of the following groups of animals has a large number of endemic species in the western ghats?

(A) Mammals
(B) Reptiles
(C) Amphibians
(D) Birds

13. **Assertion (A):** Innate immunity is a non-specific type of defence.

Reason (R): Skin in our body is the main physical barrier which prevents entry of microorganisms.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is *not* the correct explanation of the Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

14. **Assertion (A):** Chemically synthesised oligonucleotides are used during annealing in PCR technique.

Reason (R): The primers bind to the double stranded DNA at their complementary regions.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is *not* the correct explanation of the Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

15. **Assertion (A):** Vector DNA and foreign DNA are cut by the same restriction enzyme.

Reason (R): Vector DNA and foreign DNA, cut with same enzyme, produces complementary sticky ends.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is *not* the correct explanation of the Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

16. **Assertion (A):** Endosperm in angiosperm is a triploid tissue.

Reason (R): Endosperm is formed after triple fusion i.e. fusion, of a diploid secondary nucleus with a haploid male gamete.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is *not* the correct explanation of the Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

Section B

17(a). (i) Where do the signals for parturition originate from, in humans?

(ii) Why is it important to feed newborn babies on colostrum?

OR

17(b). How is GIFT different from ZIFT?

18(a). Name the scientist who proposed the central dogma in molecular biology. Give its schematic representation.

OR

18(b). Write four criteria to be fulfilled by a molecule to act as a genetic material.

19. (a) Define stratification in an ecosystem.

(b) How is stratification represented in a forest ecosystem?

20(a). (i) Name the source plant of heroin drug. How is it obtained from the plant?

(ii) Write the effects of heroin on the human body.

OR

20(b). What is 'withdrawal syndrome'? List any two symptoms it is characterised by.

21. How can childless couples get help by the following assisted reproductive technologies?

(a) GIFT

(b) ICSI

Section C

22. Name the hormones secreted :

(a) by corpus luteum and placenta (any two), and

(b) during parturition.

Also write their functions.

23. (a) Draw a schematic representation of the structure of a transcription unit and show the following in it :

(i) Direction in which transcription occurs

(ii) Polarity of the two strands involved

(iii) Template strand

(iv) Terminator

(b) Mention the function of promoter in transcription.

24. (a) How does the human body respond to an allergen? Which type of antibody is produced during allergic reactions?

(b) Name the types of drugs that help in reducing the symptoms of allergic reactions.

(c) Name the chemicals released in the body during an allergic reaction.

25. Explain the Hardy-Weinberg principle with the help of an algebraic equation.

26. (a) Name the type of interaction seen in each of the following examples.

(i) An orchid growing on branch of mango tree

(ii) Wasp pollinating fig inflorescence

(b) Also explain the above interactions shown by (i) and (ii).

27. 'Indo-Burma' is considered as a hotspot. What is meant by the term 'hotspots' in biodiversity? List two criteria used for determining a 'hotspot'. Name any two hotspots of India.

28. Explain any three different approaches used in the treatment of a person suffering from Adenosine Deaminase deficiency.

Section D

29(a). Sewage is generated in large quantities in the urban areas. It is treated in sewage treatment-plants (STPs) to make it less polluted before discharging into any natural water body. Observe the flow chart given below and answer the questions that follow :

Primary effluent is passed into large aeration tank

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Effluent is passed into settling tank to form the sediment (activated sludge)

Name the two products obtained after primary treatment of sewage.

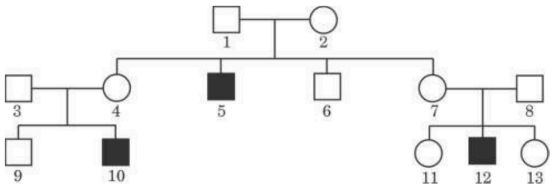
29(b). What happens to the activated sludge when it is passed into an anaerobic sludge digester? Explain.

29(c)(i). Name the two groups of microbes present in the primary effluent after it is passed into large aeration tanks.

OR

29(c)(ii). Define BOD. What happens to the BOD when organic matter present in the wastewater increases?

30(a). Haemophilia is a sex-linked recessive disease. Study the pedigree analysis given below showing the inheritance of the disease in a family and answer the questions that follow :



Analyse the given pedigree chart to explain why Haemophilia is considered a sex-linked recessive disorder.

30(b). (i) The possibility of a human female becoming a haemophilic is extremely rare. Explain.

(ii) Why do the sons of a haemophilic father never suffer from this disease?

30(c)(i). Write the possible genotype of the individuals 2 and 5.

OR

30(c)(ii). Why is haemophilia categorised as a Mendelian disorder?

Section E

31(a). Draw a flow chart to show hormonal control of the human male reproductive system.

OR

31(b). Explain the changes that the primary oocyte undergoes while in different follicular stages before ovulation.

32(a)(I)(i). State the role of selectable markers in rDNA technology.

32(a)(I)(ii). Name two such selectable markers which are considered to be useful for *E. coli* cloning vector.

32(a)(I)(iii). State two significances of 'Ori' in *E. coli* cloning vector.

32(a)(II). How have biotechnologists effectively used *Agrobacterium tumefaciens* in plants and retroviruses in animals? Explain.

OR

32(b). Name and describe the technique that helps in separation and isolation of DNA fragments after cutting of DNA by restriction endonucleases.

33(a). (i) How and why is charging of tRNA essential in the process of translation?

(ii) State the function of ribosome as a catalyst in translation in bacteria.

(iii) Explain the process of binding of ribosomal units to mRNA during protein synthesis.

(iv) Where are untranslated regions located in mRNA? Mention their role.

OR

33(b). (i) State the arrangement of different genes, that in bacteria is referred to as 'operon'.

(ii) Draw a schematic labelled illustration of *lac* operon in a switched on state.

(iii) Describe the role of lactose in *lac* operon.

- End of Question Paper -