CBSE EXAMINATION PAPER-2026

BIOLOGY

(Solved)

Time allowed : 3 hours | Maximum Marks : 81

General Instructions :

Read the following instructions carefully and follow them :

i. This question paper contains **39 questions.** All questions are **compulsory.**

ii. This question paper is divided into **5 sections.**

iii. **Section A** – questions number **1 to 2** are case based questions

iv. **Section B** – questions number **3 to 18** are multiple choice questions

v. **Section C** – questions number **19 to 26** are very short answer

vi. **Section D** – questions number **27 to 33** are short answer

vii. **Section E** – questions number **34 to 39** are long answer

viii. There is no overall choice given in the question paper. However, an internal choice has been provided in few questions.

ix. Use of calculator is NOT allowed.

Section A

Question 1. Gene manipulation is a fast emerging science. It started with the development of recombinant DNA molecules. This technology which mostly involves cutting and pasting of desired DNA fragments is based on two most important discoveries in bacteria – presence of plasmid and restriction endonucleases. The science of r-DNA technology took birth when Cohen and Boyer (1973) were able to produce a piece of gene containing foreign DNA introduced into plasmid of E.coli.

(1) Name one core technique of biotechnology that alters the genetic material.

[1 Marks]

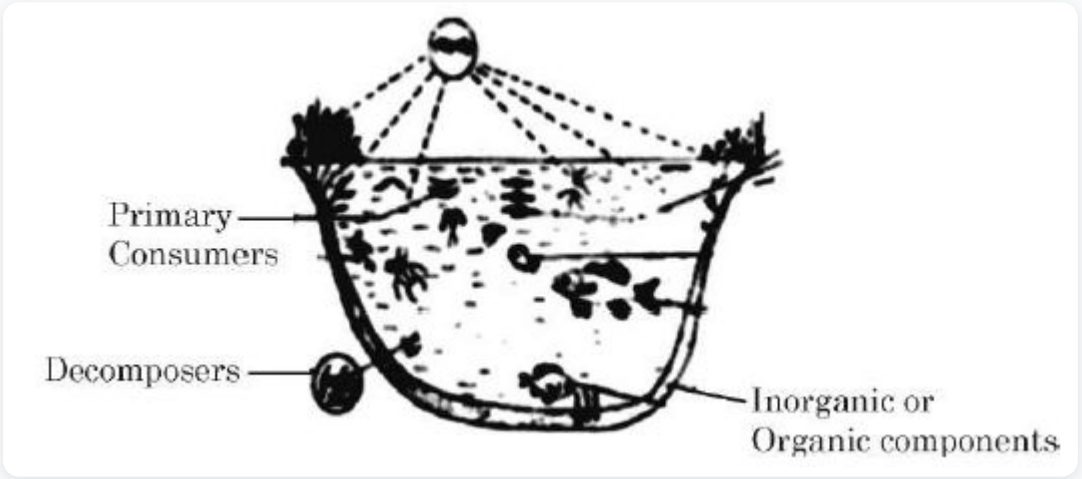
(2) What is a plasmid ? Mention its importance in biotechnology.

[2 Marks]

(3) Which gene was isolated by Cohen and Boyer and from which bacteria

[1 Marks]

Question 2. Below is shown a pond that represents a self-sustaining natural ecosystem with both biotic and abiotic components interacting in a balanced food web. Based on the diagram, answer the questions



(1) Mention two abiotic components of a pond ecosystem

[1 Marks]

(2) Differentiate between the roles of producers and decomposers in such an ecosystem.

[2 Marks]

(3) Draw a simple food chain operating in such an ecosystem and label each trophic level.

[1 Marks]

Section B

Question 3.

To separate repetitive DNA from bulk genomic DNA, which of the following method is used ?

[1 Marks]

(A) Density Gradient Centrifugation

(B) Polymerase Chain Reaction

(C) Elution

(D) Southern Blotting

Question 4.

Select the correct option

[1 Marks]

(A)	Tropics between 23.5° N – 23.5° S	—	Higher biodiversity than temperate areas
(B)	Columbia	—	105 bird species
(C)	New York	—	1400 bird species
(D)	India	—	2000 bird species

(A) B

(B) D

(C) C

(D) A

Question 5.

In a dihybrid cross, 2400 individuals are produced in F_2 generation. Approximately how many will be phenotypically similar to parents ?

[1 Marks]

(A) 580

(B) 450

(C) 1500

(D) 2000

Question 6.

What could be the reason of extinction of Abingdon Tortoise from Galapagos Islands?

[1 Marks]

(A) Interspecific Competition

(B) Parasitism

(C) Predation

(D) Intraspecific Competition

Question 7.

What conclusion can be drawn if the forelimbs of an aquatic animal and a terrestrial animal have similar anatomical structure ?

[1 Marks]

(A) Share common ancestors

(B) Live in same habitat

(C) Forelimbs perform same functions

(D) Forelimbs are analogous

Question 8.

How many of the following features are related to Nirodh – a popular brand of condoms?

(i) Prevention of sexually transmitted infections.

(ii) Phagocytosis of sperms

(iii) Male contraceptive device

(iv) Acts as chemical barrier

(v) Physiological changes in cervical mucus

[1 Marks]

(A) (i), (ii), (iv)

(B) (i) and (iii)

(C) (i), (ii), (v)

(D) (ii) and (iv)

Question 9.

A bacterium having radioactive thymidine in its DNA is allowed to multiply in a medium having non-radioactive thymidine for two generations. What percentage of bacteria will have radioactive thymidine in its DNA ?

[1 Marks]

(A) 50

(B) 100

(C) 25

(D) 75

Question 10.

What is the role of histamine released by mast cells ?

[1 Marks]

(A) Lowers blood pressure

(B) Destroys pathogens

(C) Causes allergic symptoms

(D) Stimulates antibody formation

Question 11.

Which of the following is used to visualize DNA bands under UV light after gel electrophoresis ?

[1 Marks]

(A) Ethidium Bromide

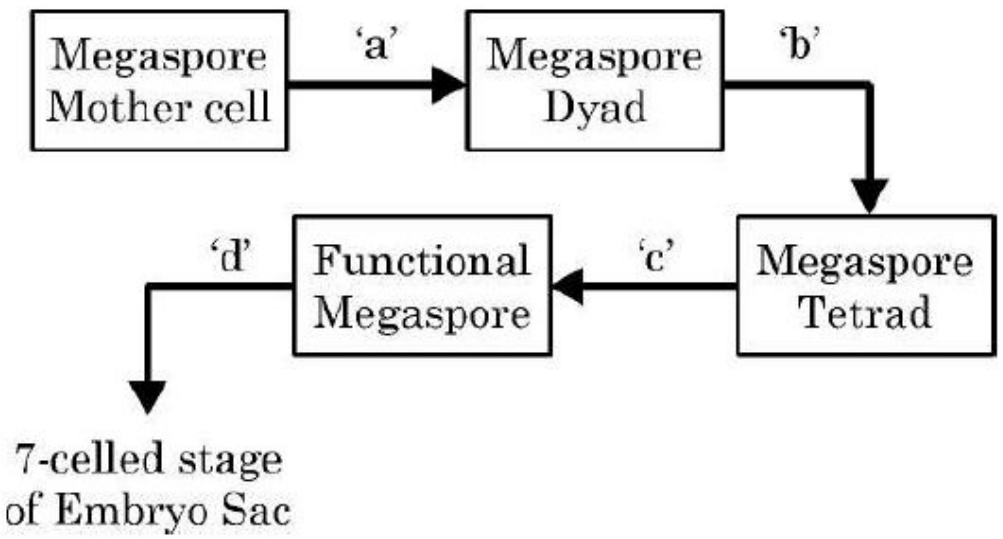
(B) Potassium Iodide

(C) Acetocarmine

(D) Safranine

Question 12. Given below are stages of embryo sac formation from megaspore mother cell. Identify the correct option for the cell division marked a, b, c and d

[1 Marks]



(A) a – Meiosis-I, b – No division, c – Mitosis, d – Meiosis-II

(B) a – Meiosis-I, b – Meiosis-II, c – No division, d - Mitosis

(C) a – Mitosis, b – Meiosis-I, c – Meiosis-II, d – No division

(D) a – No division, b – Mitosis, c – Meiosis-I, d – Meiosis-II

Question 13.

Genetically modified tobacco plants were produced using Agrobacterium vectors. Which property of Agrobacterium helps in carrying nematode specific genes into the host plant ?

[1 Marks]

(A) Infectious for dicot plant ; has Ti plasmid

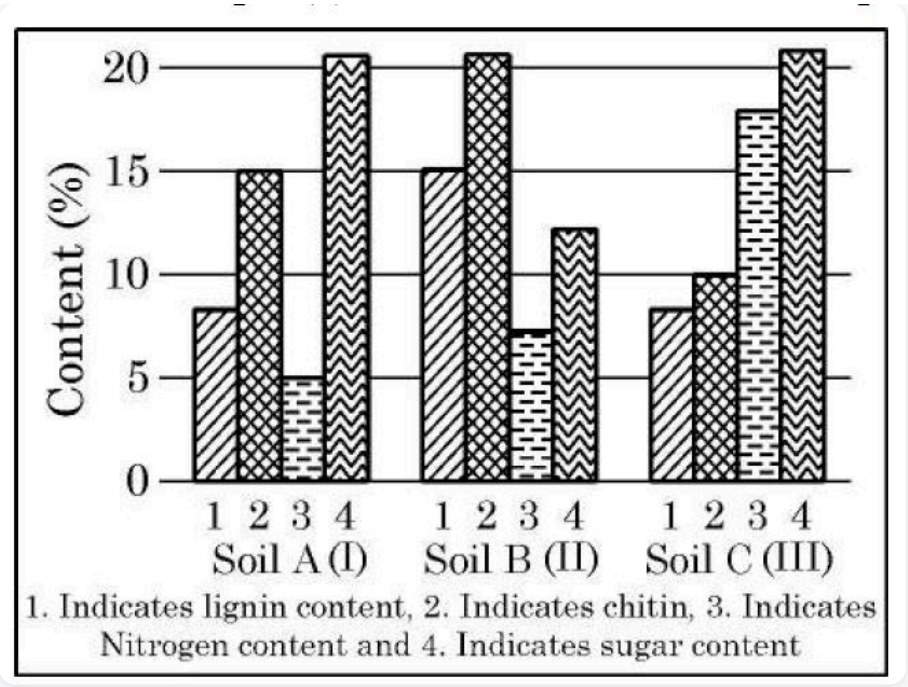
(B) Infectious for monocot plant ; has Ti plasmid

(C) Infectious for monocot and dicot plants ; has cry gene

(D) Infectious for plants and animals ; has Ti plasmids

Question 14. Observe the contents 1, 2, 3 and 4 of soil samples I, II and III shown in the graph. If the temperature and moisture of all soil samples are identical, which soil sample(s) will show faster decomposition

[1 Marks]



(A) Soil Sample I

(B) Soil Sample II

(C) Soil Sample III

(D) Both Soil Samples II and III

Question 15.

Assertion (A) : Apomixis leads to production of genetically identical off springs.

Reason (R) : Apomixis involves fertilization between two genetically similar plants.

[1 Marks]

(A) Assertion (A) is false, Reason (R) is true.

(B) Assertion (A) is true, Reason (R) is false.

(C) Both Assertion (A) and Reason (R) are true, but Reason (R) is not correct explanation for Assertion (A).

(D) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation for Assertion (A).

Question 16.

Assertion (A) : Microbes are used for commercial production of alcohol and beverages.

Reason (R) : Yeast converts glucose into ethanol and carbon dioxide during fermentation

[1 Marks]

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation for Assertion (A).

(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not correct explanation for Assertion (A).

(C) Assertion (A) is false, Reason (R) is true

(D) Assertion (A) is true, Reason (R) is false

Question 17.

Assertion (A) : IUCN Red List helps in identifying and protecting endangered species worldwide.

Reason (R) : The list includes the species facing risk of extinction.

[1 Marks]

(A) Assertion (A) is true, Reason (R) is false

(B) Assertion (A) is false, Reason (R) is true

(C) Both Assertion (A) and Reason (R) are true, but Reason (R) is not correct explanation for Assertion (A).

(D) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation for Assertion (A).

Question 18.

Assertion (A) : DNA Ligase is used to join DNA fragments.

Reason (R) : It catalyses the formation of glycosidic bonds between nucleotides

[-1 Marks]

(A) Both Assertion (A) and Reason (R) are true, but Reason (R) is not correct explanation for Assertion (A).

(B) Assertion (A) is true, Reason (R) is false

(C) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation for Assertion (A).

(D) Assertion (A) is false, Reason (R) is true

Section C

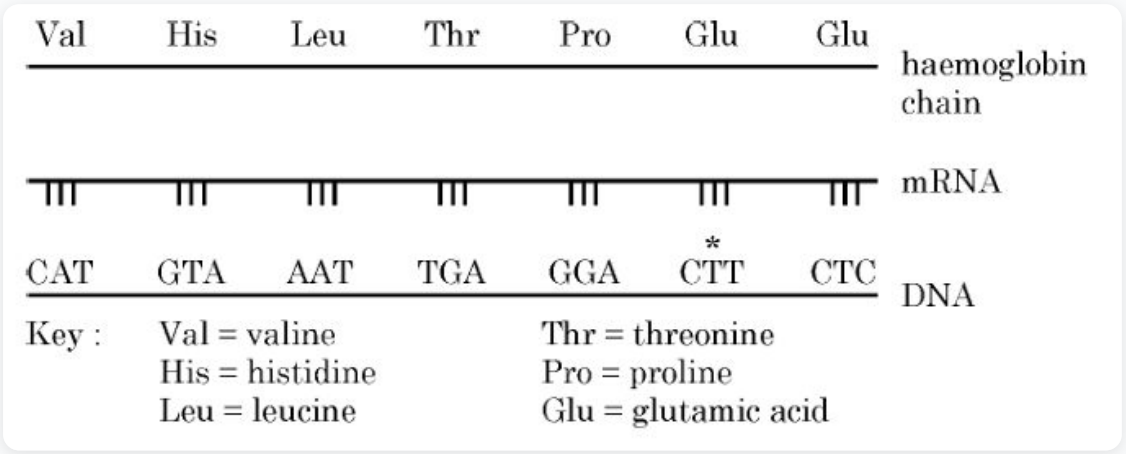
Question 19.

The diagram below shows the sequence of amino acids in part of haemoglobin molecule.

(i) If the base T is substituted with A, in 'CTT' of DNA strand how would it affect the haemoglobin chain ? 1

(ii) Name the condition and the effects associated with the above substitution

[2 Marks]



Question 20.

DNA is considered a more stable genetic material than RNA. Justify this statement with suitable reasons.

[2 Marks]

Question 21.

How do scientists use microinjection and gene gun in biotechnology ?

[2 Marks]

Question 22.

After significant reduction of BOD during secondary treatment of sewage, what further processes are carried out ? Mention any one important outcome of these processes.

[2 Marks]

Question 23.

In some cases, measuring population density by counting individuals may not be feasible. Mention two other parameters that can be used and justify their use with suitable examples.

[2 Marks]

Question 24.

What factors contribute to the Amazonian rain forests in South America being the most biodiverse regions on Earth?

[2 Marks]

Question 25.

(i) Name the organ that forms a connection between foetus and the uterus of a pregnant human female.

(ii) How does it support both nutrition and hormonal regulation ?

[2 Marks]

Question 26.

Give reasons for :

(i) All copulations do not lead to pregnancy.

(ii) Meiosis I in spermatogenesis and oogenesis are markedly different.

[2 Marks]

Section D

Question 27.

There are limitations of traditional breeding techniques that led to promotion of micro-propagation.

(a) Mention two advantages of micropropagation.

(b) Give two examples where it is commercially adopted

[3 Marks]

Question 28.

(a) Give the scientific name of the organism used by Morgan to study sex-linked traits.

(b) Write any four reasons why this organism made it an ideal experimental model.

[3 Marks]

Question 29.

Draw a neat diagram of enlarged view of one microsporangium of a Young anther of an angiosperm. Label the different layers of the wall and write the functions of the outermost and innermost layer.

[3 Marks]

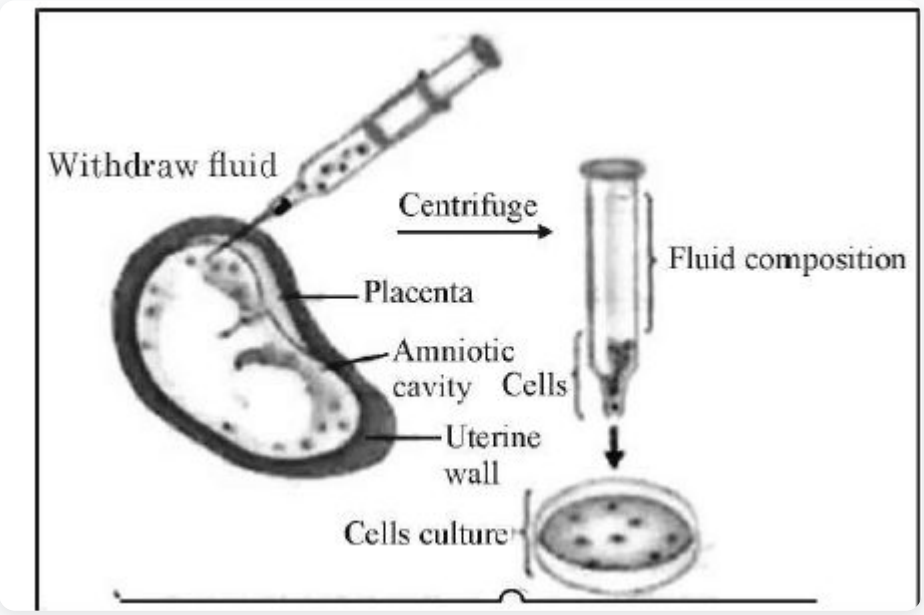
Question 30.

Study the diagram given below:

(a) Name and explain the procedure shown in the diagram. Mention one of its advantage and one disadvantage.

(b) How is ‘Saheli’ different from other oral pills in terms of its composition and advantage

[3 Marks]



Question 31.

S.L. Miller conducted an experiment in 1953 to simulate the conditions of early earth in a laboratory setup.

Answer the following questions based on the experiment

(a) What was the aim of his experiment ?

(b) Name the gases used and the source of energy

[3 Marks]

Question 32.

(a) What is a genetic code ?

(b) Why did scientists feel the need to propose a genetic code ?

(c) Genetic code is said to be ‘Universal’. Why

[3 Marks]

Question 33.

(a) A person inhales dust and pathogens but does not always fall sick. Explain how the body protects against such infections.

(b) Name and describe any two barriers involved in this protection

[3 Marks]

Section E

Question 34.

(i) Explain the role of stigma in pollen pistil interaction.
(ii) Describe the post pollination events leading to double fertilization in angiosperms starting with 2-celled pollen grain.

[5 Marks]

Question 35.

(i) Explain menstrual phase in the menstrual cycle of human female.

(ii) Why is follicular phase also called proliferative phase ?

(iii) Explain the events that occur in Graafian follicle at the time of ovulation and thereafter.

(iv) Draw a Graafian follicle and label – Antrum and secondary oocyte.

[5 Marks]

Question 36.

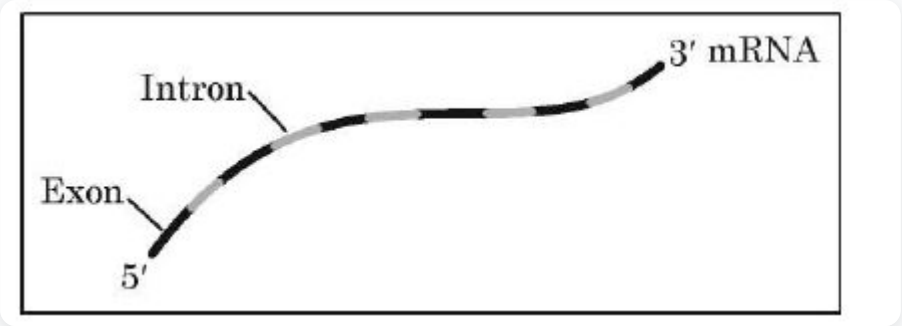
Observe the segment of mRNA given below and answers the questions given below:

(i)Explain and illustrate the steps involved to make fully processed hn RNA.

(ii) Gene encoding RNA polymerase I and RNA polymerase III have been affected by mutation.

Explain its impact on the synthesis of polypeptide giving reasons.

[5 Marks]



Question 37.

In a particular cattle, the coat colour red and white are controlled by single pair of alleles. A calf that receives allele for red coat from mother and allele for white coat from father shows equal number of red and white hairs on its coat.

(i) Is this an example of Co-dominance or incomplete dominance. Give a reason for your answer.

(ii) With the help of a genetic cross upto F_2 generation, explain

what will be the consequent phenotype of calf when

(1) Red is dominant over white.

(2) Red is incompletely dominant.

[5 Marks]

Question 38.

A 30 year old man was admitted to a hospital with recurrent infections, weight loss, prolonged fever. His blood report showed a decline in count of T-Lymphocytes thus affecting immune system.

(i) Identify the disease and its causative agent.

(ii) How did the pathogen affect the immune system once it entered the body ? Explain.

(iii) Mention two major modes of its transmission.

[5 Marks]

Question 39.

(i) Why are microbes considered effective biocontrol agents in sustainable agriculture

(ii) Explain the role of the following as biocontrol agents naming the pests or diseases they help to control :

(1) A Bacterium

(2) A Fungus

(3) Virus

[5 Marks]