



BOARD QUESTION PAPER : JULY 2025

BIOLOGY

Time: 3 Hrs.

Max. Marks: 70

General Instructions:

The question paper is divided into **four** sections.

- (1) **Section A:** Q. No. 1 contains **Ten multiple choice** type of questions carrying **one** mark each. Evaluation will be done for the **first attempt** only.
Q. No. 2 contains **Eight very short answer** type of questions carrying **one** mark each.
- (2) **Section B:** Q. No. 3 to 14 are **short answer** type of questions carrying **two** marks each. (Attempt **any Eight**)
- (3) **Section C:** Q. No. 15 to 26 are **short answer** type of questions carrying **three** marks each. (Attempt **any Eight**)
- (4) **Section D:** Q. No. 27 to 31 are **long answer** type of questions carrying **four** marks each. (Attempt **any Three**)
- (5) **Begin the answer of each section on a new page.**

SECTION – A**Q.1. Select and write the correct answer for the following multiple choice type of questions:****[10]**

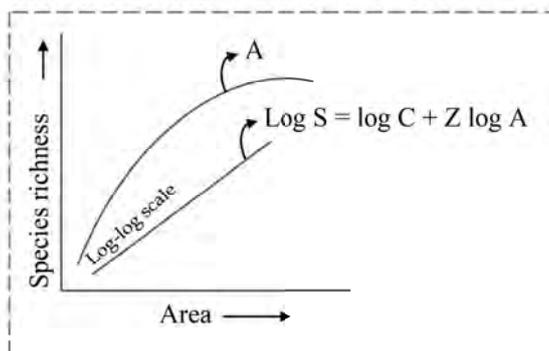
- i. The number of base pairs present around a histone octamer of nucleosome is _____.
(A) 200 (B) 146 (C) 54 (D) 20
- ii. Which of the following is NOT a sensory nerve?
(A) I (B) II (C) III (D) VIII
- iii. Which of the following biofertilizers is used by farmers to increase the yield of rice crop?
(A) *Azotobacter* (B) *Azospirillum* (C) *Bacillus* (D) *Azolla*
- iv. Connecting link between amphibians and reptiles is _____.
(A) *Archaeopteryx* (B) *Australopithecus* (C) *Seymouria* (D) *Ichthyosaurus*
- v. The type of gene interaction deviating from Mendel's findings of 3 : 1 to 1 : 2 is _____.
(A) Incomplete dominance (B) Codominance
(C) Multiple alleles (D) Pleiotropy
- vi. Identify initiation codon of mRNA from the following.
(A) UAA (B) AUG (C) UAG (D) UGA
- vii. Identify the type of association between orchid growing as an epiphyte on branch of mango tree.
(A) Parasitism (B) Amensalism (C) Commensalism (D) Mutualism
- viii. Which of the following substances protects pollen grains from chemicals?
(A) Pectin (B) Hemicellulose (C) Cellulose (D) Sporopollenin
- ix. The part of antibody which binds with the specific antigen to form antigen-antibody complex is _____.
(A) Paratopes (B) Isotopes (C) Epitopes (D) Octamer
- x. Which genes are used for improvement of oil content and oil quality in plants?
(A) Phytase gene (B) Arabidopsis gene (C) Holandric gene (D) Oncogene

Q.2. Answer the following questions:**[8]**

- i. Give term for "The total genetic information encoded in sum total of genes in a Mendelian population."
- ii. Name the process in which swelling of hydrophilic colloids occur due to adsorption of water.
- iii. Give the term for the condition in which the number of WBCs in blood decreases below normal.
- iv. What is the term, when nucleotides on DNA strands shows the following sequence of base pairs.
3' _____ CTT AAG _____ 5'
5' _____ GAA TTC _____ 3'



- v. Identify 'A' from the graph given below showing species area relationship:



- vi. Name the disorder in which deficiency of ADH leads to reduced water reabsorption and increase in urine output.
- vii. Name the permanent birth control method in which the fallopian tube is tied and cut.
- viii. Name the long term storage places of carbon in the form of rocks and fossil fuels which are away from carbon cycle.

SECTION – B

Attempt any EIGHT of the following questions:

[16]

- Q.3. Give any two reasons why breathing through nose is beneficial than through mouth.
- Q.4. Mention any two molecular evidences of evolution.
- Q.5. Enlist any four uses of gene therapy.
- Q.6. Define the terms :
- Explant
 - Callus
- Q.7. Identify the disorders showing following symptoms:
- Constriction of bronchioles, mucus build up in bronchioles, periodic wheezing, difficulty in breathing.
 - Inflammation of sinuses and mucous discharge.
- Q.8. Define: AGR and RGR regarding plant growth.
- Q.9. Draw a neat diagram of structure of root hair showing vacuole, mitochondria and nucleus.
- Q.10. Enlist the types of chromosomes on the basis of position of centromere.
- Q.11. Mention any four drawbacks of Darwinism.
- Q.12. Write appropriate equations to represent Ammonification.
- Q.13. Give any two functions of Medulla oblongata.
- Q.14. Differentiate between Inspiration and Expiration with respect to position of diaphragm and working of intercostal muscles.

SECTION – C

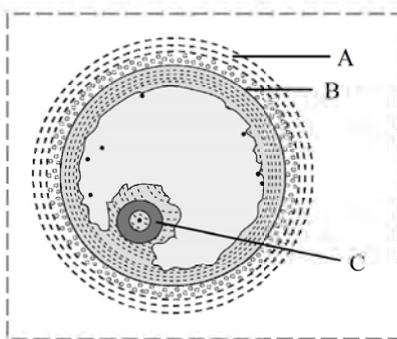
Attempt any EIGHT of the following questions:

[24]

- Q.15. What is adolescence? Mention any four characteristics of 15 to 17 years age group.



Q.16. Identify A, B and C from the given diagram of Graafian follicle and mention their significance:



- Q.17.** i. Which part of CNS produces CSF?
ii. Give any four functions of CSF.

Q.18. Write the name and position of any three valves in human heart.

Q.19. Describe any three chemical defence mechanisms in plants against herbivores in population interaction.

Q.20. Mention any six symptoms of disorder caused by trisomy of 21st chromosome.

Q.21. Describe the development of male gametophyte from microspore. Draw a neat labelled diagram of male gametophyte.

Q.22. Define decomposition. Explain any four steps of decomposition in correct sequence.

Q.23. Give deficiency symptoms of following elements in plants:

- i. Potassium (K^+)
- ii. Magnesium (Mg^{++})
- iii. Boron (BO^{-3})

Q.24. Give scientific names of sugarcane varieties native of North and South India. Name the centre in India which has developed sugarcane varieties containing high sugar.

Q.25. With appropriate terms, complete the following chart and rewrite it:

Sr. No.	Disorder/Diseases Health Condition	Recombinant Protein (s)
i.	Parturition	<input type="text"/>
ii.	Emphysema	<input type="text"/>
iii.	<input type="text"/>	Hepatitis B vaccine

Q.26. Mention any two major types of air pollutants. Add a note on their ill effects on human health.

SECTION – D

Attempt any THREE of the following questions:

[12]

Q.27. Define endosperm. Describe types of endosperm.

Q.28. With the help of a neat labelled diagram, describe the structure of human sperm.

Q.29. Describe the transcription and processing of hnRNA to mRNA in Eukaryotes.

Q.30. What is transpiration? Draw well labelled diagram showing structure of stomatal apparatus in dicotyledons? Mention any three advantages of transpiration.

Q.31. Name any four hormones secreted by adenohipophysis and give their significance.