



BOARD QUESTION PAPER : MARCH 2023

BIOLOGY

Time: 3 Hrs.

Max. Marks: 70

General Instructions:

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

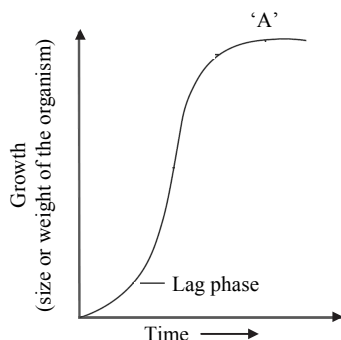
- (1) **Section A:** Q. No. 1 contains **Ten multiple choice** type of questions carrying **one** mark each.
 - (i) For each multiple choice type of question, it is mandatory to write the correct answer along with its alphabet, e.g., (A) / (B) / (C) / (D) etc. No mark/s shall be given if ONLY the correct answer or alphabet of the correct answer is written.
 - (ii) In case of **MCQ**, 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. Histones are rich in _____.
 - (A) Lysine and Arginine
 - (B) Leucine and Methionine
 - (C) Serine and Leucine
 - (D) Phenyl alanine and Lysine
- ii. How many mitotic divisions take place during the formation of a female gametophyte from a functional megaspore?
 - (A) One
 - (B) Two
 - (C) Three
 - (D) Four
- iii. Which of the following is the only gaseous plant growth regulator?
 - (A) ABA
 - (B) Cytokinin
 - (C) Ethylene
 - (D) Gibberellin
- iv. The pH of nutrient medium for plant tissue culture is in the range of _____.
 - (A) 2 to 4.2
 - (B) 5 to 5.8
 - (C) 7 to 7.5
 - (D) 8 to 9.5
- v. Rivet Popper Hypothesis is an analogy to explain the significance of _____.
 - (A) Biodiversity
 - (B) natality
 - (C) sex-ratio
 - (D) age distribution ratio
- vi. Which of the following group shows ZW-ZZ type of sex determination?
 - (A) Pigeon, Parrot, Sparrow
 - (B) Parrot, Bat, Fowl
 - (C) Bat, Fowl, Crow
 - (D) Sparrow, Fowl, Cat
- vii. In Hamburger's phenomenon, _____.
 - (A) Cl^- diffuse into WBCs
 - (B) Cl^- diffuse into RBCs
 - (C) Na^+ diffuse into RBCs
 - (D) Na^+ diffuse into WBCs
- viii. Calcium and Phosphate ions are balanced between blood and other tissues by _____.
 - (A) Thymosin and Parathormone
 - (B) Calcitonin and Somatostatin
 - (C) Collip's hormone and Calcitonin
 - (D) Calcitonin and Thymosin
- ix. Identify the INCORRECT statement.
 - (A) In a flaccid cell, T.P. is zero
 - (B) In a turgid cell, DPD is zero
 - (C) In a fully turgid cell, $\text{TP} = \text{OP}$
 - (D) Water potential of pure water is negative
- x. Which of the following is a hormone releasing contraceptive?
 - (A) Cu-T
 - (B) Cu-7
 - (C) Multiload-375
 - (D) LNG-20

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

- Which disease is caused by HPV?
- Which device is used to clean both dust and gases from polluted air?
- Mention the name of sterile animal produced by intergeneric hybridisation.
- Give the name of first transgenic plant.
- A child has low BMR, delayed puberty and mental retardation. Identify the disease.
- Identify 'A' in the given graph of population growth:



- Complete the following box with reference to symptoms of mineral deficiency:

Abscission	Pre-mature fall of flowers, fruits and leaves
	Appearance of green and non-green patches on leaves

- Give an example of plant having both kidney and dumb-bell shaped guard cells in stomata.

SECTION – B**Attempt any EIGHT of the following questions:****[16]****Q.3. Define the terms:**

- Gross Primary Productivity
- Net Primary Productivity

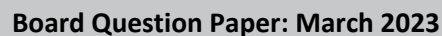
Q.4. Draw a neat diagram of thyroid gland and label thyroid follicle, follicular cells and blood capillaries.

- Give reason – ABA is also known as antitranspirant.
- Explain the role of chlorophyllase enzyme in banana.

Q.6. Complete the chart showing human proteins produced by rDNA technology to treat human diseases and re-write.

Disorders/diseases	Recombinant Proteins
?	Erythropoietin
Asthma	?
?	Tissue plasminogen activator
Emphysema	?

- Define – Imbibition
 - Explain how imbibition helps root hairs in adsorption of water.
- Q.8. Draw a neat diagram of the conducting system of human heart and label AV node, Bundle of His and Purkinje fibres.**
- Q.9. Distinguish between heterochromatin and euchromatin with reference to staining property and activity.**



?	Herbivores
Primary Producer	?
?	Man, Lion
Secondary consumer	?

- ## SECTION – C

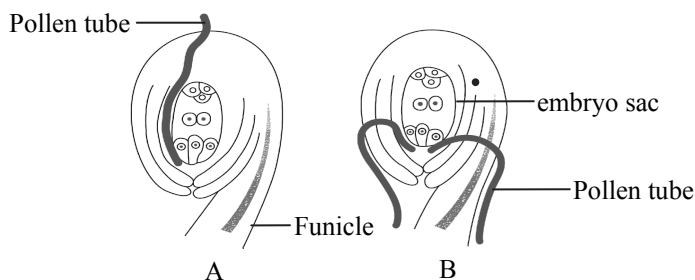
[24]

- | Sr. No. | Name of interaction | Interaction between |
|---------|---------------------|----------------------------|
| 1 | —?— | <i>Plasmodium</i> and Man |
| 2 | —?— | Leopard and Lion |
| 3 | —?— | Clown fish and Sea-anemone |

- 3



- Q.25. i.** Following are the diagrams of entry of pollen tube into ovule. Identify the type A and B.



- ii. Give any four points of significance of double fertilization.
- Q.26. i.** Name the hormone which is responsible for apical dominance.
- ii. A farmer wants to remove broad-leaved weeds from the jowar plantation in his field. Suggest any plant hormone to remove such weeds.
- iii. Mention any two applications of cytokinin.

SECTION – D

Attempt any THREE of the following questions:

[12]

- Q.27. i.** What is blood pressure?
- ii. Give the name of the instrument which is used to measure the blood pressure.
- iii. Differentiate between an artery and a vein with reference to lumen and thickness of wall.
- Q.28. i.** Describe any three adaptations in anemophilous flowers. Mention any one example of the anemophilous flower.
- ii. Describe any three adaptations in hydrophilous flowers. Mention any one example of the hydrophilous flower.
- Q.29. i.** What is polymerase chain reaction (PCR)?
- ii. Describe three steps involved in mechanism of PCR.
- Q.30. i.** Give any four significances of fertilization in human.
- ii. Mention the names of any two organs each derived from ectoderm and mesoderm.
- Q.31. i.** Give any two functions of cerebellum.
- ii. Write the names of any four motor cranial nerves with their appropriate serial number.
- iii. Which hormones stimulate liver for glycogenesis and glucogenolysis?