



2018 III 13

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Seat No. :

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Time : 2½ Hours

**BIOLOGY (New Pattern)**

**Subject Code**

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Total No. of Questions : 28

(Printed Pages : 4)

Maximum Marks : 55

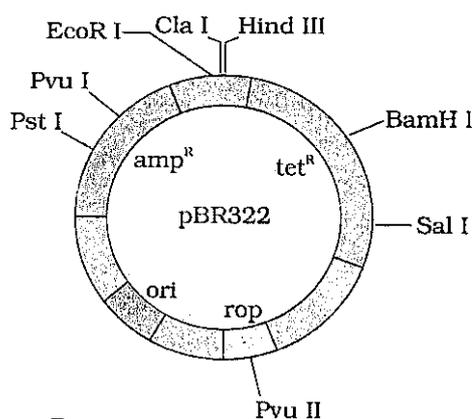
- INSTRUCTIONS:**
- All questions are compulsory.**
  - The question paper consists of **four** Sections **A, B, C** and **D**. Section **A** contains **10** questions of **1** mark **each**, Section **B** has **11** questions of **2** marks, Section **C** has **5** questions of **3** marks and Section **D** has **2** questions of **4** marks **each**.
  - There is **no** overall choice, however **internal** choice has been provided in **1** question of Section **B**, **1** question of Section **C** and **2** questions of Section **D**.
  - Multiple choice questions should be attempted **only once** on the answer book. If attempted **more than once**, it will **not** be evaluated. Choose and rewrite the correct alternative **only**.
  - Draw diagrams in **lead pencil only**.

**SECTION – A (1 mark each)**

- In the first phase of translation amino acids are activated in the presence of ATP and linked to their cognate tRNA. This process is known as
  - Linking of tRNA
  - Amino acylation of tRNA
  - Amino linkage of tRNA
  - Processing of tRNA
- Which of the following is **not true** about the fruit fly Drosophila Melanogaster ?
  - It completes its life cycle in about two weeks.
  - It has many types of hereditary variations.
  - It is a hermaphrodite.
  - It can be easily grown in the laboratory.



3. A collection of plants or seeds having all the diverse alleles for all genes in a given crop is
  - Herbarium
  - Somaclones
  - Germplasm
  - Cultivars
4. Transfusing a person with blood plasma proteins from a person that has been actively immunised against a specific antigen provides
  - Active immunity
  - Innate immunity
  - Passive immunity
  - Auto immunity
5. Given below is the figure of a cloning vector pBR322 in which a foreign DNA is ligated at the Pvu I site. Which antibiotic resistance gene helps in selection of recombinants ?



- tet<sup>R</sup> gene
  - amp<sup>R</sup> gene
  - EcoR I
  - rop
6. Draw a neat diagram of isogametes of cladophora.
  7. Draw a neat diagram of L.S. of apple.
  8. Haemozoin and histamine are chemical substances released in the human body. Differentiate between the two.
  9. Elephants trample and destroy the small plants in their path. Identify the type of interaction between the Elephant and the plant.
  10. What is brood parasitism ?



**SECTION – B (2 marks each)**

11. The leaf cells of the coconut tree have 32 chromosomes. What will be the number of chromosomes in the following parts ?
- Coconut kernel
  - Coconut pollen.

12. Draw a neat diagram of the structure of a sperm.

13. Write the features of an individual affected by Down's syndrome.

OR

Write a note on incomplete dominance seen in starch grain size in Pea seeds.

14. Draw a neat diagram of DNA double helix.

15. Describe packaging of DNA in a nucleosome.

16. Ishiara colour vision test report confirmed that Master Rahul is colour blind. The same test for his mother and father confirmed that both are having normal vision. With your knowledge of genetics.

- Justify the reports.
- If Rahul has a brother what type of vision will he have ?

17. State the importance of :

- Agarose gel
- Ethidium bromide in gel electrophoresis.

18. How is gene of interest amplified using polymerase chain reaction ?

19. The following observations were listed by an Agriculture Research Institute during a study on breeding plants for developing resistance to insect pests :

- Some wheat plants have solid stem.
- Some maize plants have high aspartic acid.

What will be the benefit of the characteristics to the above cited plants ?

20. If succession starts in a newly formed lake and a barren rocky area simultaneously,
- Name the pioneer species that will invade in both the cases.
  - What will be the end result of both these successions ?



21. Below given are two examples of causes of Biodiversity loses. Identify the terms used for such causes.
- The Yucca plant species will not survive if all the Pronuba moths that pollinate the plant are irradiated.
  - Parthenium species is a weed widely growing all over India. It sucks all nutrients and is dangerous for existence of other plants. This species was first introduced when the seeds of this weed came as adulterants in the wheat imported from the USA in 1950.

**SECTION – C (3 marks each)**

22. Explain the process of spermatogenesis in humans.
23. Discuss RNA interference as a technique to obtain pest resistant tobacco plants.

OR

Discuss **any three** benefits of transgenic animals.

24. Write the causal organism, mode of transfer and the symptoms of the infectious diseases typhoid and amoebiasis.
25. Explain origin and evolution of man.
26. Describe eutrophication of a lake.

**SECTION – D (4 marks each)**

27. Describe the natural contraceptive methods. Write any two features of an ideal contraceptive.

OR

Describe the assisted reproductive technologies that could enable couples to have children.

28. Explain the steps involved in the process of sewage treatment.

OR

Explain the uses of microbes as bio control agents.

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