

Candidates must write the code on the title page of the answer book

Roll No.

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- Please check that this question paper contains **3** printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer book by the candidate.
- Please check that this question paper contains **27** questions.
- **Please write down the serial number of the question before attempting it.**
- **15** minutes' time has been allotted to read this question paper. The student will read the question paper only and will not write any answer on the answer script during this period.

Second Pre Board Examination, 2018-2019

BIOLOGY

Grade: 12

Time: 3 hours

Date: 27.01.2019

Max. Marks: 70

General Instructions:

- All questions are compulsory*
- Marks for each question are indicated against it.*
- The question paper consists of four sections A, B, C and D.*
- Internal choice is given in all the sections. **A student has to attempt only one of the alternatives in such questions.***
- Section-A contains 5 questions of 1 mark each.*
- Section-B has 7 questions of 2 marks each.*
- Section-C is of 12 questions of 3 marks each*
- Section-D has 3 questions of 5 marks each.*
- Wherever necessary, the diagrams drawn should be neat and properly labelled.*
- Use Log Tables, if necessary. Use of calculators is not allowed*

SECTION-A

1. How are flavr savr tomatoes different from normal tomatoes?

1

OR

- Why are proteins synthesised from spirulina called single cell protein?
2. Name the type of chemical bond formed between two nucleotide units of a DNA molecule? 1
 3. Why do we call restriction enzymes as molecular scissors? 1
 4. How a Water Hyacinth plant becomes so very harmful to the pond ecosystem? 1
 5. Write the source of Taq polymerase enzyme. 1

SECTION-B

6. Name the pioneer and climax communities of a hydrarch succession. 2

OR

- What is primary productivity? Give brief description of factors that affect primary productivity?
7. Into which structure does the head of spermatozoa remain embedded after formation? Name the hormone secreted by this structure. 2
 8. How Darwin's finches explain adaptive radiation? 2
 9. Why colostrum is so important to an infant? 2
 10. What are RFLP and VNTRs? Which technique are they used into? 2

OR

- What is PCR method? Explain its significance
11. Organisms are being used as bio fertilizers and bio weapons. Comment and give examples from each group 2
 12. a) Which hormones are responsible for parturition? 2
b) Draw labeled diagram of a blastocyst.

SECTION-C

13. Which features of tumour causing bacteria *Agrobacterium* makes it suitable as a good cloning vector? 3
14. a) What is a test cross? How is it useful to the geneticist? 3
b) Write the genotype and phenotype of progenies formed by a cross between a pure tall plant and a hybrid tall plant.

OR

- Describe male heterogamety and female homogamety through two suitable examples.
15. Describe the process of biogas production. 3
 16. Write the source and effect of following : 3
a) Smack
b) Cocaine
c) LSD.

OR

- a) What are autoimmune diseases? Name any two.
- b) What is basis for vaccination in human beings? Write the full form of DPT vaccine.
17. What is RNA silencing? Give the example of *Meloidogyne incognitia* for the same 3
18. a) Draw well labeled diagram of a human sperm. 3
b) What will happen if the acrosome of a sperm is removed?

19. List the harmful effects caused by alcohol or drug abuse. 3
- OR**
- Why is using tobacco in any form injurious to health? Explain.
20. Write the sources and roles of following: 3
- cyclosporin A
 - statins
 - SCPs
21. Define tissue culture and micropropagation. Mention their significance for enhancement of food production. 3
22. What is active and passive immunity? Give examples of vaccines that provide active and passive immunity. Mention which one is long lasting and why? 3
23. Define inbreeding depression. How the harmful effects of inbreeding depression can be overcome? 3
- OR**
- What is heterosis?
 - Explain biofortification and mutation breeding methods of plant breeding to improve quality and quantity of yield.
24. What are CFCs? Explain their effect on global warming and ozone depletion 3
- SECTION-D**
25. a) Tubectomy and Vasectomy cannot be considered as methods of contraception. Give reason. 5
- How techniques like GIFT, ZIFT, and AI are different from each other? Describe each one of them.
 - Under which conditions will a couple need surrogate mother's help?
- OR**
- Describe in detail the events taking place during oogenesis.
 - When does meiotic division completes in the ovum?
26. Define central dogma. How retroviruses are an exception to the unidirectional information flow? Describe the steps involved in life cycle of the AIDS virus. 5
- OR**
- What are pleiotropic genes? Give example.
 - Describe the inheritance pattern of human skin colour.
 - Differentiate between co dominance and incomplete dominance.
27. Describe in detail the ecosystem services. Discuss the role played by biodiversity in maintenance of ecosystem services. 5
- OR**
- Explain the specificity of energy flow in the ecosystem with reference to ecological pyramids.
 - What is standing crop?
 - Discuss the role played by biotic factors in nutrient cycling within the ecosystem.