II PUC First Mock Paper Jan-2020
Subject: Biology

Duration: 3:15 hours **Max.Marks: 70**

GENERAL INSTRUCTIONS:

1. **This question paper consists of four parts A, B, C and D. Part D consists of two parts, Section-1 and Section-II.**
2. **All the parts are compulsory.**
3. **Draw the diagrams whenever necessary. Unlabelled diagrams or illustrations do not attract any marks.**

PART– A

I. Answer the following questions in one word/ sentence: **10 × 1 = 10**

1. Give an example of an autoimmune disease
2. State the theory of spontaneous generation.
3. What is brood parasitism?
4. Define totipotency.
5. Mention the experimental organism on which Morgan worked.
6. What is foetal- ejection reflex?
7. Give an example of a microbe that can be used as a biocontrol agent.
8. What does 'K' stand for in the logistic growth equation?
9. Why is chilled ethanol used during isolation of DNA material?
10. Papaya plants exhibit xenogamy only. Why?

PART– B

II. Answer any FIVE the following questions in 3-5 sentences each, wherever applicable: **5 × 2 = 10**

11. a) State Gause's competitive exclusion principle.
    b) How does an individual's body adapt to altitude sickness?
12. Mention any four features of insect pollinated flowers.
13. a) Define genetic drift.
    b) Name the first mammal to evolve on earth.
14. Draw a neat labelled diagram of Transcriptional unit.
15. What is Parturition? Name the neuroendocrine hormone that induces parturition.
16. Define inbreeding. How is it useful?
17. Explain the law of dominance proposed by Mendel.
18. Draw a neat labelled sketch representing agarose gel electrophoresis.

Part-C

III. Answer any FIVE of the following questions in 40-80 words each, wherever applicable: **5 x 3 =15**

19. a) Draw a neat labelled sketch of an antibody molecule.
    b) Name the two types of acquired immune responses. (2+1)
20. a) Why eukaryotic genes are called split genes?
    b) Name the initiator codon.
    c) Expand VNTR.

21. What is artificial hybridisation? By which techniques is it achieved?
22. Explain the three categories of biodiversity given by Edward Wilson.
23. Briefly explain the 3 features required to facilitate cloning into a vector.
24. a) Mention the the accessory ducts of male reproductive system.
    b) Why is oxytocin necessary for Parturition? (2+1)
25. a) Mention the two key concepts of Darwinian theory of evolution.
    b) What is male heterogamety? (2+1)
26. Write a case study of remedy for plastic waste.

Part- D
Section-I

IV. Answer any FOUR the following questions in 200-300 words each, wherever applicable: **4 x 5 = 20**

27. Mention any five differences between microsporogenesis and megasporogenesis
28. Explain different steps involved in translation. Add a note on amino acylation of tRNA
29. a) What is biofortification? List two examples.
    b) Explain the steps in MOET. (2+3)
30. a) Mention any four benefits of GMO s.
    b) Schematically represent the steps in PCR. (2+3)
31. What are contraceptives? explain any four different non -surgical contraceptive methods.
32. Draw a neat labelled diagram of a)scrubber b) electrostatic precipitator (2+3)

Section-II

V. Answer any THREE of the following questions in 200-250 words each, wherever applicable: **3 x 5 = 15**

33. a) Write a flowchart that depicts mendelian dihybrid cross for the inheritance of colour and shape of seed in pea plant
    b) Mention the two examples ofevolution by anthropogenic evolution. (3+2)
34. a) Describe the “rivet popper” hypothesis.
    b) Draw a graph representing species area relationship. (3+2)
35. Give a schematic representation of spermatogenesis.
36. Draw a neat labelled diagram of Double helix structure of DNA and explain the same.
37. Draw a neat labelled diagram of sectional view of Mammary gland.

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