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V Semester B.Sc. Degree Examination, March - 2021

**ZOOLOGY****Genetics and Biotechnology****(CBCS) (2021 Onwards)****Paper : VI****Time : 3 Hours****Maximum Marks : 70****Instruction to Candidates:**

- 1) Draw neat labelled diagrams wherever necessary.
- 2) Answers should be completely in english.

**PART - A****I. Answer the Following in One word or One sentence.****(10×1=10)**

1. What type of twins are produced when a zygote splits into two cells?
2. Write the Phenotypic ratio of Mendel's dihybrid cross.
3. What are alleles?
4. Mention two types of gynandromorphs.
5. Give any two methods of negative eugenics.
6. What are cosmids?
7. List any two types of bioreactors.
8. Mention two types of host cells used in rDNA technology.
9. Define artificial insemination.
10. Expand AFLP.

**PART - B****II. Answer any Five of the following.****(5×3=15)**

11. State the law of segregation.
12. What is hypertrichosis? Name the chromosome involved in it.
13. Define:
  - a) Cistron
  - b) Muton
  - c) Recon
14. Write a note on Physical mutagens.

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15. List the steps involved in embryo transfer.
16. What is gene therapy? Mention any two types.
17. List any three applications of DNA finger printing.

**PART - C**

**III. Answer any Five of the following.**

**(5×5=25)**

18. Write a note on erythroblastosis foetalis.
19. Explain cytoplasmic inheritance with reference to Kappa particles in Paramecium.
20. Describe the structure of Lampbrush chromosomes.
21. With reference to sex determination explain the
  - a) XX - XY
  - b) ZZ - ZW
22. Explain genic balance theory of Bridge's.
23. Write notes on:
  - a) Electroporation.
  - b) Micro injection.
24. Define PCR technique Mention its applications.

**PART - D**

**IV. Answer any Two of the following.**

**(2×10=20)**

25. What are supplementary genes? With reference to inheritance of comb shape in poultry fowls work out the following crosses:
  - a) Rose Comb (RR pp) × Single Comb (rr pp)
  - b) Pea Comb (rr PP) × Single Comb (rr pp)
  - c) Rose Comb (RR pp) × Pea Comb (rr PP)Work out F<sub>1</sub> and F<sub>2</sub> generation.
26. Explain the inheritance of :
  - a) ABO blood groups in man.
  - b) Haemophilia
27. Write notes on:
  - a) Klinefelters syndrome
  - b) Cystic fibrosis.
28. What are stem cells? Explain the types, sources and their applications.