

# **RAMAKRISHNA MISSION VIDYAMANDIRA**

(Residential Autonomous College affiliated to University of Calcutta)

**B.A./B.Sc. FIFTH SEMESTER EXAMINATION, FEBRUARY 2022**

**THIRD YEAR [BATCH 2019-22]**

**ZOOLOGY (HONOURS)**

**PAPER : XII [CC12]**

Date : 28/02/2022

Time : 11 am – 1 pm

Full Marks : 50

**Answer all the questions:**

## **Group A**

1. a) What is the difference between GMOs and transgenic organisms?  
b) What is Gene Gun Technique?  
c) Describe the principle of the DNA microinjection technique. (1+1+3)
2. a) What is CRISPR?  
b) How can CRISPR technique help in biotechnology?  
c) How does Ti plasmid induce uncontrolled cell division and tissue growth? (1+2+2)

## **Group B**

3. a) Mention one advantage and one disadvantage of cell line culture.  
b) Mention four measures taken as precaution for tissue culture establishment.  
c) Why avian oocyte cannot be cryopreserved? (2+2+1)

## **Group C**

4. a) Mention the molecular techniques for identification and estimation of the protein level in a sample.  
b) What is bioremediation technique and how is it important? (3+2)
5. a) How the recombinant DNA technology is used for insulin production in pharmaceutical purposes?  
b) What is the mechanism behind the Huntington's disease? (3+2)
6. a) Mention the molecular diagnosis process for sickle cell anaemia.  
b) State the principle behind the DNA fingerprinting mechanism used in Forensic Science. (2+3)

## **Group D**

7. a) What is the difference between published patent and granted patent? What is the life expectancy of a patent?  
b) Briefly elaborate the "Cartagena Protocol" on biosafety.  
c) What are the purposes and scope of bioethics? (2+1.5+1.5)

### **Group E**

8. a) Name a useful and quick method for increasing the ligation efficiency of blunt-ended DNA molecules.
- b) How do the primers determine the specificity of a PCR?
- c) How has PCR made the analysis of RFLPs much faster and easier? (2+2+1)
9. a) Why do plasmids contain genes for antibiotic resistance?
- b) What was required to map RFLPs prior to the utilization of PCR?
- c) Mention the special features of pLFR5. (2+1+2)
10. How can you insert a foreign compatible DNA into pYAC3? Explain with a figure. (4+1)

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