RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FIFTH SEMESTER EXAMINATION, MARCH 2021

THIRD YEAR [BATCH 2018-21]

Date : 18/03/2021

ZOOLOGY (HONOURS)

Time : 11 am – 1 pm

PAPER : VII

Full Marks : 50

Answer all the Questions

Group - A

1. a) How do the primers determine the specificity of a PCR? (2)

   b) Yeast artificial chromosomes must have which three features of normal chromosomes to be maintained in cells? (2)

   c) Which genetic marker is present in the highest numbers within the human genome? (1)

2. a) Why are maps required for the sequencing of genomes? (1)

   b) If a map of a genome is unavailable, what would be the major difficulties in obtaining a genome sequence? (1.5)

   c) What are the ideal features of a DNA marker that will be used to construct a genetic map? (1)

   d) To what extent can RFLPs, SSLPs, or SNPs be considered as "ideal" DNA markers? (1.5)

Group - B

3. a) What is a patent? What cannot be patented? (1+1)

   b) State briefly about the International "Cartagena Protocol on Biosafety". (1)

   c) The subject of 'bioethics' touches upon philosophy of science and application of biotechnology – comment. (2)

4. a) Where and how to apply for a patent? (1)

   b) What are PCT and WIPO stand for? Elaborate the terms briefly. (1)

   c) State a few applications of biosafety measures to be applied in the field of biotechnology. (1)

   d) In the perspectives of human experiment with a biotechnologically developed vaccine, what are the issues to be considered during a clinical trial. (2)

Group - C

5. a) How the biotechnologists can use cell culture for their benefit? (3)

   b) What is the difference between the primary and secondary cell cultures? (2)

6. a) Explain in brief the two ways by which we can do the DNA fingerprinting. (4)

   b) Why is it important? (1)

7. a) Illustrate the molecular diagnosis method for Huntington's disease. (2.5)

   b) Do you think gene therapy may work to treat a patient with Huntington's disease? (2.5)

8. A scientist wants to compare the expression of a particular protein (Protein X) in between two samples (Control vs Infected): What possible biotechnological assays he/she might perform to get the information? (5)

9. a) How Recombinant DNA technology is used in the pharma industries to produce medicine? (3)

   b) State two uses of biomediation method in the real life. (2)

10. a) How the knockout mice and transgenic animals can help the scientists to design and execute their experiments? (3)

    b) What problems you may think of if the organisamal cloning is allowed to practice without any restrictions? (2)

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