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Total No. of Questions : 09

B.Sc. (Agriculture) (Sem.-7)

MOLECULAR BIOTECHNOLOGY AND GENOMICS

Subject Code : BSAG-PGB-707

M.Code : 77103

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Q1. Write briefly :

- a) Genome
- b) BLAST and its types
- c) pBR322
- d) Palindromic sequences
- e) Shuttle Vectors
- f) LOD score
- g) NCBI
- h) Isoschizomers with example
- i) ISSRs
- j) Linkers and Adaptors

SECTION-B

- Q2. a) Define Gene Cloning and enlist its basic steps.
- b) What are the functions of the following in a gene cloning experiment?
- i) Type II endonucleases
 - ii) Alkaline phosphatases
- Q3. a) Define RFLPs. What is the basis of polymorphism using RFLP markers?
- b) What do you understand by polymorphic and monomorphic marker?
- c) Are SSRs dominant or co-dominant markers?
- Q4. Define Proteome. What are the major steps that constitute a proteome analysis?
- Q5. What is the principle of Sanger's sequencing method and what are its advantages over Maxam and Gilbert sequencing technique?
- Q6. Define Molecular map. Discuss briefly about the various segregating populations that could be used to construct a linkage map.

SECTION-C

- Q7. Discuss in details about the Principle, Advantages, Limitations and Applications of any two Hybridization techniques.
- Q8. What is a cDNA clone? Enlist basic steps involved in cDNA cloning. Describe in details the synthesis of first and second strand of cDNA.
- Q9. a) Define PCR and its various components. Diagrammatically represent different stages of PCR.
- b) Name any two bioinformatics tools for PCR primers designing.
- c) Give any three reasons that could lead to PCR failure.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.