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B.Sc. (Agriculture) (2014 & Onwards) (Sem.-7)
INTRODUCTION TO MOLECULAR BIOTECHNOLOGY
Subject Code : BSAG-702
Paper ID : [74825]

Max. Marks : 60

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.**

Q.1. Write short notes on :

- Transposable elements
- Expression Vectors
- Linkage map and physical map
- Degenerate primers
- rDNA technology
- VNTRs
- SNPs
- Plasmid Vectors
- LOD score
- Out of the following, explain with a reason which could be a recognition site of Type II restriction endonucleases (i) CGCGCG (ii) AGCCGA (iii) GGAAGG (iv) all of these (v) none of these

SECTION-B

- Q.2. Write a note on Marker assisted breeding.
- Q.3. Describe the principle of Southern hybridization.
- Q.4. Define Marker and its types. What are the characteristics of an ideal marker?
- Q.5. Define and compare between genomic libraries and cDNA libraries. How will you calculate the minimum number of clones required to represent a genomic library of an organism?
- Q.6. Explain how selection of transformed cells is carried out in a cloning experiment.

SECTION-C

- Q.7. Define DNA sequencing and NextGen sequencing. Describe various techniques that could be used for sequencing.
- Q.8. Define PCR. What are the 3 components of PCR thermal profile? Describe the principle of any two PCR variants.
- Q.9. What do you understand by gene cloning? Describe approaches that could be used for gene cloning.