Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (Agriculture) (2014 & Onwards) (Sem.–7)

INTRODUCTION TO MOLECULAR BIOTECHNOLOGY

Subject Code : BSAG-702

M.Code : 74825

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 short notes on :

a) Operons

b) Histones

c) Transformation

d) Gene tagging

e) Mapping population

f) Hot start PCR

g) Marker assisted gene pyramiding

h) Genome

i) Repetitive DNA

j) Synonymous and nonsynonymous SNPs

SECTION-B

Q2. a) What is the basis of polymorphism of RAPD markers?

b) Write any two features of the primers used for development of RAPD markers.

c) Name two dominant and co-dominant markers each.

Q3. Write a short note on selection of transformed cells in a cloning experiment.

Q4. a) Who first discovered restriction endonucleases?

b) Define Cohesive ends and examples of enzymes producing cohesive ends.

c) What are the major differences between genome organizations among eukaryotes and prokaryotes?

Q5. a) Define Gene Cloning and competent cells.

b) Describe the principle and applications of Marker Assisted Selection.

Q6. What are the functions of various important components of a PCR reaction? How can you determine the annealing temperature of a primer?

SECTION-C

Q7. Define genomic library. Write in details the steps for the construction of genomic libraries and their applications.

Q8. a) Discuss the principle of Sanger sequencing technique.

b) Define NextGen sequencing techniques. Name any two techniques. What are various applications for which sequencing data could be utilized?

Q9. What is the principle of Southern hybridization? Write in detail its procedure and applications.

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.