

Total No. of Questions : 4]

SEAT No. :

P3991

[Total No. of Pages : 2

[5246]-219

M. Pharm.

MEDICINAL PLANT BIOTECHNOLOGY

(2013 Pattern)

(E.1.10) (Elective subject of all semesters)

Time : 3 Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) Question No. 1 is compulsory.
- 2) Draw well labeled diagram wherever necessary.
- 3) Enter the question number clearly in the margin of the answer book beside each of your answer.
- 4) Figures to the right indicate full marks.

**SECTION - I**

**Q1)** Define Gene expression. What are Regulated stages of gene expression? Write a note on epigenetic regulation & its correlation with the Methylation of DNA. [10]

**Q2)** Solve Any three: [3×5=15]

- a) What are different Plant signal transduction pathways? What are Mitogenactivated protein kinases (MAP kinases)? What are types of MAP kinases?
- b) What is the Genetic code? What are its salient features? What is start codon? How Alternative start codons are different from the standard AUG codon? What is stop codon?
- c) What is the Recombinant DNA molecule? Why it is called as called 'chimeric DNA'? How recombinant DNA molecule is created by Molecular cloning? How does Molecular cloning which is the laboratory process used to create recombinant DNA differs from another process called polymerase chain reaction?
- d) What is Somatic embryogenesis? What are its applications? What are different steps required in plant regeneration via somatic embryogenesis? Enlist the Problems associated with somatic embryogenesis.
- e) Write an overview of Ex situ Germplasm Conservation in Plants.

*P.T.O.*

**Q3)** Short notes (Any three)

**[3×5=15]**

- a) Gibson assembly & Its advantages
- b) Elicitors for Production of Secondary metabolites & its classification
- c) A microRNA
- d) Restriction enzymes & its types
- e) Edible Vaccines

**Q4)** What is an Immobilized Enzyme? What are its commercial uses? What are different ways by which one can immobilize an enzyme. **[10]**

