

Exam.Code:1033  
Sub. Code: 7873

2072

M.E. (Bio-Technology) Second Semester  
ME-BIO-204: Genetic Engineering

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer to the following:-

- a) Explain the reason of altered specificity of a restriction endonuclease?
- b) Is it possible to change the incompatibility group of plasmids? How?
- c) How relevant is directed evolution in protein engineering?
- d) State the significance of bioremediation?
- e) Patenting has restricted scientists to talk about their work until patent is granted. Is this good for the society? Give reason for your answer. (5x2)

#### UNIT - I

- II. a) Explain with the help of a diagram, the significance of synthetic adaptor molecule ligation in a cloning experiment?  
b) Describe the relevance of cohesive ends and blunt ends in the genetic manipulation technology? (6,4)
- III. a) Explain the various joining methods available for joining DNA fragments *in vitro*.  
b) What are the advantages & disadvantages of using adenovirus and retrovirus as vectors? (6,4)
- IV. a) Schematically explain the preparation of cDNA library and also compare the utility of cDNA library and genomic library?  
b) Explain with the help of diagram, how site directed mutagenesis can be achieved using PCR? (2x5)

P.T.O.

(2)

UNIT - II

- V. a) RFLP has long been used as a screening tool for sickle cell Anaemia. Why? Explain its advantages in this case and disadvantages for other diseases/mutations.  
b) Explain the functioning of padlock probe? (6,4)
- VI. a) Compare the radioactive and non-radioactive hybridization procedures for molecular diagnosis? How useful these methods are for high throughput analysis?  
b) What are humanized monoclonal antibodies? How are they better than others? (6,4)
- VII. a) RAPD is commonly used to fingerprint different plant cultivars. Explain if they can be equally useful in fingerprinting of human samples? Justify your answer.  
b) Give two examples for the process as well for the product which have been patented and explain why they come under the patent category? (2x5)

x-x-x