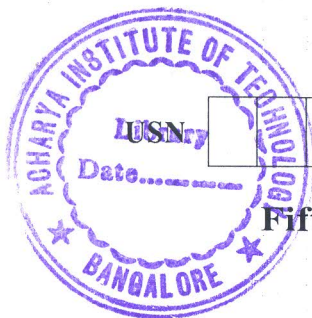


# CBCS SCHEME



15BT52

Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020  
**Genetic Engineering and Applications**

Time: 3 hrs.

Max. Marks: 80

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

**Module-1**

- 1 a. Explain the different steps involved in construction of recombinant DNA. (08 Marks)
- b. Differentiate between plasmid and phage vectors with one examples each. (08 Marks)

**OR**

- 2 a. What are Restriction endonucleases? Explain the types and mechanism of action of RE's. (08 Marks)
- b. Discuss the applications of DNA ligases, polymeletotide kinases, RNase and terminal transferases in genetic engineering. (08 Marks)

**Module-2**

- 3 a. Explain the different variants of PCR with their applications. (08 Marks)
- b. Describe the various methods of plasmid isolation. (08 Marks)

**OR**

- 4 a. Differentiate between genomic and cDNA libraries. Add a note on their applications. (08 Marks)
- b. Elucidate the methodology of Southern Blothing. (08 Marks)

**Module-3**

- 5 a. What are the salient features of Ti plasmids? Describe the method of FDNA transfer into plant cells. (08 Marks)
- b. Describe microinjection and electroporation methods of gene transfer. (08 Marks)

**OR**

- 6 a. What are liporomes? Explain the liposome mediated gene delivery into cells. (06 Marks)
- b. Describe the gene gun mediated gene transfer. (06 Marks)
- c. Write short notes on chloroplast transformation. (04 Marks)

**Module-4**

- 7 a. With relevant examples explain transgenic plants against abiotic stresses. (10 Marks)
- b. Write a short note on Bt. Cotton. (06 Marks)

**OR**

- 8 a. Define Molecular Markers. Explain few molecular markers in gene mapping in plants and animals. (10 Marks)
- b. Define Biopharming. Brief on transgenic animals as bioreactors. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

**Module-5**

- 9 a. What is gene therapy? Write a detailed account on gene therapy approaches, success and challenges. (10 Marks)
- b. Write a short note on Gene silencing. (06 Marks)

**OR**

- 10 a. Discuss the contribution of genetic engineering in producing recombinant microbial enzymes. (08 Marks)
- b. Explain the recombinant DNA technology based strategy for producing Insulin. (08 Marks)

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