

**5/H-77 (v) (Syllabus-2015)**

**2 0 1 7**

**( October )**

**BIOTECHNOLOGY**

**( Honours )**

**( Recombinant DNA Technology )**

*Marks : 56*

*Time : 3 hours*

*The figures in the margin indicate full marks  
for the questions*

Answer Question No. **1** which is compulsory  
and **any four** from the rest

1. Write notes on any *four* of the following :

3×4=12

- (a) Selectable marker
- (b) Expression vectors
- (c) Gene therapy
- (d) Alkaline phosphatase
- (e) cDNA library

2. (a) What are vectors? Describe their characteristics with respect to bacteriophage.

6

( 2 )

- (b) Define containment facility. Explain in detail the various safety measures used in rDNA technology. 5
3. (a) "All vectors contain an antibiotic resistant marker." Support your answer with suitable examples in context to their wider application. 5
- (b) What are sticky ends and blunt ends? How are they related to rDNA technology? Support your answer with two examples. 6
4. With suitable examples, describe the process of chemical transformation and electroporation of foreign DNA molecule. 10
5. (a) Describe the characteristic features of Ti plasmid. 4
- (b) Write a note on the application of transgenic plants. 4
- (c) What are chimeras? Explain their importances. 3
6. (a) What are RM systems? How are they related to the overall integrity of restriction enzymes? 5
- (b) Explain in detail the various mammalian cell lines used for rDNA technology. 6

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( Continued )

( 3 )

7. (a) Define gene gun. Explain in detail the gene delivery method. 7
- (b) Describe the steps involved in blue-white screening. 4
8. Explain in detail the steps involved in the cloning of a 10-kb gene. Support your answer with suitable diagrams. 11

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