

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.PHARM – SEMESTER – 8- EXAMINATION –WINTER - 2018**

**Subject Code: 2280015****Date: 28/11/2018****Subject Name: Genetic engineering and gene therapy****Time: 02:30 PM TO 05:30 PM****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain Gene Cloning with neat and labelled diagram. **06**  
(b) Write a note on applications of genetic engineering. **05**  
(c) What is central dogma of life? Explain the process of translation with diagram. **05**
- Q.2** (a) What are vectors in genetic engineering? Enumerate the types of vectors. **06**  
Explain plasmid PBR322 as a vector in detail with diagram.  
(b) What is RNA? Write a note on types of RNAs. **05**  
(c) What is PCR explain the cycle and write applications of PCR. **05**
- Q.3** (a) What do you mean by Antisense oligo nucleotide therapy? **06**  
(b) What are monoclonal antibodies? How they are produced? Write the **05**  
applications of Monoclonal Anti bodies.  
(c) What is blotting? Explain southern blotting with suitable diagram. **05**
- Q.4** (a) What are transgenic plants? How they are produces? Write the applications of **06**  
transgenic plants.  
(b) What is Humulin? Explain the production using recombinant DNA technology. **05**  
(c) What do you mean by gene therapy? Explain the types with suitable example. **05**
- Q.5** (a) Explain DNA delivery methods in detail. **06**  
(b) Write a note on Quantification of Nucleic acids. **05**  
(c) Explain in detail about transgenic animals. **05**
- Q. 6** (a) Write in detail about DNA sequencing techniques. Explain any one technique **06**  
using suitable diagram.  
(b) Write a note on transformation with diagram. **05**  
(c) Explain about DNA vaccine in detail. **05**
- Q.7** (a) Explain the application of gene therapy in Hematopoietic disorders. **06**  
(b) What are restriction enzymes? Explain the types and applications in detail. **05**  
(c) Explain about bacteriophage with suitable diagram. **05**

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