

**SUBJECT : PHARMACEUTICAL BIOTECHNOLOGY
(Including Molecular Biology)**

Day : **Friday**
Date : **17/11/2017**

W-2017-3841

Time : **10.00 AM TO 01.00 PM**
Max. Marks : 80.

N.B.:

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from Section-I and any **TWO** questions from Section-II.
- 2) Both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Draw neat and labeled diagrams **WHEREVER** necessary.

SECTION-I

- Q.1** Answer any **FIVE** of the following: **(10)**
- a) Draw a labeled diagram of Animal cell.
 - b) Define a plasmid.
 - c) What are DNA restriction and ligation?
 - d) Give structure of tRNA.
 - e) What is electrophoresis?
 - f) What is RNA dependent DNA polymerase?
 - g) Define transformation and transduction.
- Q.2** Outline the process of polymerase chain reaction and give applications of PCR. **(15)**
- Q.3** Discuss salient features of genetic code. **(15)**
- Q.4** Write short notes on any **THREE** of the following: **(15)**
- a) Transcription initiation complex
 - b) Contributions of Griffith
 - c) DNA replication
 - d) DNA mutations – point mutation and frame shift mutation
 - e) Applications of rDNA technology.

SECTION-II

- Q.5** Answer any **FIVE** of the following: **(10)**
- a) What are extremophiles?
 - b) Draw a neat labeled diagram of stirred tank reactor.
 - c) Enlist five industrially important enzymes.
 - d) What is an inoculum?
 - e) Give two examples of protein engineering.
 - f) Give factors affecting enzyme activity.
 - g) What is site directed mutagenesis?
- Q.6** Describe various methods of enzyme immobilization. **(15)**
- Q.7** Differentiate a fermentor and bioreactor with special reference to a batch fermentor and fluidized bed reactor. **(15)**
- Q.8** Write short notes on any **THREE** of the following: **(15)**
- a) Applications of enzyme in food industry
 - b) Downstream processing
 - c) Spray drying
 - d) Whole cell immobilization
 - e) UV induced mutation in strain improvement.