

M.PHARM. (PHARMACEUTICAL BIOTECHNOLOGY) SEM-II (CBCS-2019 COURSE) Winter - 2021.  
SUBJECT : BIOINFORMATICS AND COMPUTATIONAL TECHNOLOGY

Day Wednesday  
Date 01-12-2021

Time 02:00 PM-05:00 PM  
Max. Marks : 75

W-20783-2021

N.B.

- 1) Q.No. 1 and Q.No. 5 are **COMPULSORY**. Out of remaining questions answer **ANY TWO** from **each** section.
- 2) Answers to both sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate **FULL** marks.

**SECTION – I**

- Q.1** Give an account on bioinformatic tools available on NCBI. (08)
- Q.2** Differentiate structural similarity and sequence similarity. (15)
- Q.3** You are given two DNA sequences to align ACGTCCTTCATT and GTCTCATG. (15)  
You have a scoring scheme where a match gives you +1, a mismatch gives you 0 and gap opening costs –1. Write down the best alignment of the two sequences.
- Q.4** Write notes on **ANY TWO** of the following : (15)
- a) Phylogenic tree
  - b) Boolean search
  - c) Homologue, Parologue and Orthologue

**SECTION – II**

- Q.5** Describe the tool for *in silico* gene prediction. (07)
- Q.6** Differentiate between prokaryotic and eukaryotic control of gene expression. (15)
- Q.7** Outline the principle of peptide mapping. (15)
- Q.8** Write notes on **ANY TWO** of the following : (15)
- a) Horizontal gene transfer : Transduction
  - b) Bootstrapping
  - c) Retrotransposons

\*\*\*\*\*