



**RZ-003-1016043**

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

**B. Sc. (Sem. VI) (CBCS) Examination**

**March - 2019**

**BT - 603 : Advance Molecular Techniques And  
Bioinformatics**

*(New Course)*

**Faculty Code : 003**

**Subject Code : 1016043**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.  
(2) The right side figure indicates total marks of the question.

- 1 Attempt the following : **14**
- (A) Answer the following short questions : (All Compulsory) **4**
- (1) \_\_\_\_\_ is used to cleave modified base in Maxam Gilbert method.
  - (2) \_\_\_\_\_ membrane is used in blotting technique.
  - (3) \_\_\_\_\_ PCR is used for the quantification of DNA.
  - (4) \_\_\_\_\_ is used for detritylation method in chemical synthesis of DNA.
- (B) Answer Any **One** of the following short questions : **2**
- (1) Enlist the types of PCR.
  - (2) Application of western blotting techniques.
- (C) Answer Any **One** of the following short questions : **3**
- (1) Write the steps of southern blotting techniques.
  - (2) Write a note on autoradiography.

- (D) Explain Any **One** of the following questions in details : **5**
- (1) Explain the process of DNA synthesis by phosphoramidite method.
  - (2) Explain in detail the next generation sequencing technique.
- 2** Attempt the following : **14**
- (A) Answer the following short questions : (All Compulsory) **4**
- (1) Name one non-PCR based molecular marker.
  - (2) DNA foot printing is used for the study of \_\_\_\_\_ interaction.
  - (3) SNP stands for
  - (4) Chromosome walking and jumping is used to find the location of \_\_\_\_\_ in chromosome.
- (B) Answer Any **One** of the following short questions : **2**
- (1) Difference between microsatellite and minisatellite.
  - (2) What is chromosome walking?
- (C) Answer Any **One** of the following short questions : **3**
- (1) What is gene therapy? Enlist and explain its types.
  - (2) Application of restriction mapping.
- (D) Explain Any **One** of the following questions in details : **5**
- (1) Enlist and explain types of molecular marker used in molecular techniques.
  - (2) Explain the mechanism and application of DNA foot printing.
- 3** Attempt the following : **14**
- (A) Answer the following short questions : (All Compulsory) **4**
- (1) Human genome Project got completed in the year \_\_\_\_\_.
  - (2) NCBI is located at
  - (3) KEGG is used for the study of \_\_\_\_\_.
  - (4) JCVI is known for the study of \_\_\_\_\_.

- (B) Answer Any **One** of the following short questions : 2
- (1) Write the importance of biological database.
  - (2) What is ExPASy?
- (C) Answer Any **One** of the following short questions : 3
- (1) Classify biological database based on NAR journal.
  - (2) Write a note on Sanger's Institute.
- (D) Explain Any **One** of the following questions in details : 5
- (1) Give an overview of Human Genome Project and write its application.
  - (2) What is bioinformatics? Write in detail about its branches and application.
- 4 Attempt following : 14
- (A) Answer the following short questions : (All Compulsory) 4
- (1) PubMed is a \_\_\_\_\_ database.
  - (2) RCSB stands for \_\_\_\_\_
  - (3) Full form of CATH \_\_\_\_\_.
  - (4) \_\_\_\_\_ is the database for the three-dimensional structure of large bio molecules.
- (B) Answer Any **One** of the following short questions : 2
- (1) Name sources of primary and secondary biological database with examples.
  - (2) Useful features of MMDB.
- (C) Answer Any **One** of the following short questions : 3
- (1) Write a note on InterPro.
  - (2) Write a note on OMIM.

- (D) Explain Any **One** of the following questions in details : 5
- (1) Explain the categories of UniProt.
  - (2) Explain the classification of protein based on SCOP.

5 Attempt the following : 14

(A) Answer the following short questions : (All Compulsory) 4

- (1) BLAST is used as \_\_\_\_\_ search tools.
- (2) Microarray is used for the study of \_\_\_\_\_.
- (3) Functional Genomics is the study of \_\_\_\_\_.
- (4) Full form of BLOSUM is \_\_\_\_\_.

(B) Answer Any **One** of the following short questions : 2

- (1) What is global and local alignment.
- (2) What is homologues, paralogues and orthologues?

(C) Answer Any **One** of the following short questions : 3

- (1) What are the types of BLAST?
- (2) Write the general rules of primer design and enlist computer aided primer design tools.

(D) Explain Any **One** of the following questions in details : 5

- (1) Write an overview on comparative genomics.
- (2) Briefly explain Structure and ligand-based drug discovery.

---