



**RAI-003-001420**

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

**Second Year B. Sc. (Sem. IV) (CBCS) Examination**

**March / April - 2019**

**Microbiology : Paper - MB.P-401**

*(Analytical Techniques & Bioinformatics)*

**Faculty Code : 003**

**Subject Code : 001420**

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

[Total Marks : 70

- Instructions :**
- (1) All questions are compulsory.
  - (2) The paper is divided in two sections.
  - (3) There is no separate OMR sheet will be provided for section - I.
  - (4) Figures on right indicate marks.

**SECTION - I**

- 1 Answer the following questions : **20**
- (1) \_\_\_\_\_ is used as reference compound in NMR.
  - (2) Write the full form of ISO.
  - (3) Write the units of radioactivity.
  - (4) Which type of spectrophotometer is used for determination of metallic elements in food industry ?
  - (5) Write the role of Guard Column.
  - (6) \_\_\_\_\_ is added as source of free radicals in Polymerization of PAGE.
  - (7) Give name of a reducing agent used in SDS PAGE.
  - (8) Resolution is proportional to the square root of the number of theoretical plates in a column. True/False.
  - (9) Write the enzyme used in PCR.
  - (10) Which technique is used to detect specific RNA sequence ?

- (11) pH biosensor is based on \_\_\_\_\_ type of sensor.
- (12) What is the chemical name of a “synthon” used in DNA synthesis ?
- (13) Give examples of programming language.
- (14) Which parts of computer are examples of main memory ?
- (15) Unsolicited commercial email is commonly known as \_\_\_\_\_.
- (16) Write the examples of system software.
- (17) What is TrEMBL ?
- (18) Write two features of FASTA file format.
- (19) Which tool is used as the information retrieval tool of NCBI gene bank ?
- (20) What is SMILES ?

## SECTION - II

- 2 (a) Answer specifically : (any three) **3×2=6**
- (1) Write the components of atomic absorption spectroscopy.
  - (2) Define positron and negatron.
  - (3) Define blotting technique. Write its type.
  - (4) What is software ? Enlist various types of software.
  - (5) What is the difference between gap opening penalty and gap extension penalty ?
  - (6) What is an electroendoosmosis ?
- (b) Answer specifically : (any three) **3×3=9**
- (1) Discuss shielding and deshielding in NMR spectroscopy.
  - (2) Define: Cation Exchanger. Give example.
  - (3) Explain STR and SNPs.
  - (4) Write a note on HTML.
  - (5) Define database. Give types and examples of each.
  - (6) Describe in brief RFLP.

(c) Write short notes : (any two) **2×5=10**

- (1) Explain the importance of quality management in industries.
- (2) Describe in detail HPLC.
- (3) Explain DNA finger printing.
- (4) Write in detail on applications of internet.
- (5) Describe : BLAST and FASTA.

**3** (a) Answer specifically : (any three) **3×2=6**

- (1) Define : Total Quality Management.
- (2) What is an isocratic elution ?
- (3) Write the principle of FISH.
- (4) Enlist various input devices of computer.
- (5) Write a brief note on cheminformatics resources.
- (6) How TLC is better than paper chromatography ?

(b) Answer specifically : (any three) **3×3=9**

- (1) Discuss applications of radioisotopes in biosciences.
- (2) Write an essay on Affinity chromatography.
- (3) How IEF is carried out ?
- (4) Explain automated DNA sequencer.
- (5) Discuss: various component parts of control panel.
- (6) Write in brief on SMILES nomenclature.

(c) Write short notes : (any two) **2×5=10**

- (1) Discuss the principle and applications of Infra red spectroscopy.
- (2) Describe SDS-PAGE.
- (3) Write a note on Southern Blotting and its applications.
- (4) Discuss the usage of multimedia.
- (5) Describe in detail role of bioinformatics in drug designing.