DCJ-003-1016012 Seat No. _____

B. Sc. (Sem. VI) Examination

July - 2022

MB-602 : Analytical Techniques & Bioinformatics

Faculty Code : 003
Subject Code : 1016012

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 (a) Objective type questions : **4**

(1) What is GLP?

(2) What is mass spectroscopy?

(3) State Beer's law.

(4) What is ISO?

(b) Answer in brief : (any 1 out of 2) **2**

(1) What is QC and QA?

(2) Write applications of NMR spectroscopy.

(c) Answer in detail : (any 1 out of 2) **3**

(1) Explain IR spectroscopy.

(2) Write applications of radioisotopes in biological science.

(d) Answer in detail : (any 1 out of 2) **5**

(1) Write a detailed note on GLP.

(2) Describe components and working of UV-Visible spectrophotometer.

2 (a) Objective type questions : **4**

(1) Give the function of guard column.

(2) Define chromatogram.

(3) What is Kd value?

(4) Write two names of detectors used in GC.

(b) Answer in brief : (any 1 out of 2) **2**

(1) Explain principle of TLC.

(2) Write principle of affinity chromatography.

(c) Answer in detail : (any 1 out of 2) **3**

(1) Give a brief note of Gas chromatography.

(2) Explain ion exchange chromatography.

(d) Answer in detail : (any 1 out of 2) **5**

(1) Write a detailed note on HPLC.

(2) Describe paper chromatography.

3 (a) Objective type questions : **4**

(1) Give full form of PFGE

(2) What is autoradiography?

(3) Enlist factors affecting electrophoretic mobility.

(4) Give function of EtBr in agarose gel electrophoresis.

(b) Answer in brief : (any 1 out of 2) **2**

(1) What is capillary electrophoresis?

(2) Explain paper electrophoresis?

(c) Answer in detail : (any 1 out of 2) **3**

(1) What is flow cytometry? Write its applications.

(2) Explain agarose gel electrophoresis.

(d) Answer in detail : (any 1 out of 2) **5**

(1) Describe in detail: PAGE.

(2) Explain in detail biosensor technology with its applications.

4 (a) Objective type questions : **4**

(1) Give full form of VNTR

(2) Give examples of primer designing tools.

(3) What is primer?

(4) What is Tm?

(b) Answer in brief : (any 1 out of 2) **2**

(1) What is FISH?

(2) Explain RFLP.

(c) Answer in detail : (any 1 out of 2) **3**

(1) Explain any one method of DNA sequencing.

(2) What is blotting? Explain any one method of blotting.

(d) Answer in detail : (any 1 out of 2) **5**

(1) Explain in detail process of PCR with applications.

(2) Explain chemical synthesis of DNA.

5 (a) Objective type questions : **4**

(1) What is FASTA?

(2) Enlist various database of proteins.

(3) Full form of DBMS.

(4) Give examples of structure databases.

(b) Answer in brief : (any 1 out of 2) **2**

(1) What is gap penalty? enlist types of gap penalty.

(2) What is Entrez?

(c) Answer in detail : (any 1 out of 2) **3**

(1) Explain BLAST.

(2) Explain importance of bioinformatics in biological sciences.

(d) Answer in detail : (any 1 out of 2) **5**

(1) Explain construction of phylogenetic tree using computer.

(2) Write a detailed note on biological databases.
