G-1/154/22 Roll No. .....

I Semester Examination, January 2022

M.Sc.

BIOTECHNOLOGY

Paper IV

(Bio-techniques)

Time : 3 Hours] [Max. Marks : 80

Note : *All questions are compulsory. Question Paper comprises of 3 Sections. Section A is objective type/multiple choice questions with no internal choice. Section B is short answer type with internal choice. Section C is long answer type with internal choice.*

SECTION A **1×8=8**

(Objective Type/Multiple Choice Questions)

Choose the correct answer :

1. Which of the following is the simplest of pH meter ?

   (a) Null detector type pH meter

   (b) Direct reading type pH meter

   (c) Digital type pH meter

   (d) Modern pH meter.

P.T.O.

2. Beer Samberts law gives the relation between which of the following :

(a) Reflected radiation and concentration

(b) Scattered radiation and concentration

(c) Energy absorption and concentration

(d) Energy absorption and reflected radiation

3. What is the wavelength range for UV spectrum of light ?

(a) 400 nm – 700 nm (b) 700 nm – 1 mm

(c) 0.01 nm – 10 nm (d) 10 nm – 400 nm

4. All of the following change the absorptivity of sample except :

(a) Concentration

(b) Molecular structure

(c) Wavelength of radiation

(d) Temperature.

5. Which of the following light is suitable for gettiing maximum resolution ?

(a) Red (b) Green

(c) Blue (d) Orange

6. Liquid Scintillation spectrometry is a method of detecting :

(a) X-rays (b) α-emitters

(c) gamma rays (d) β-emitters.

7. Electrophoresis was developed by :

(a) Tsweft (b) Tsveelberg

(c) Tiselius (d) Sanger.

8. What is the principle of centrifuge ?

(a) Size reduction principle

(b) Filteration principle

(c) Evaporation principle

(d) Sedimentation principle.

SECTION B **6×4=24**

(Short Answer Type Questions)

Note : *Answer the following questions in* **250** *words.*

Unit-I

1. Explain application of colorimeter.

Or

Explain principle of densitometer.

Unit-II

2. Describe principle of phase contrast microscopy.

Or

What is Blast and Fast, explain in short ?

Unit-III

3. What is MRI (magnetic resonance imaging) ? Explain in brief.

Or

Describe application of Giger Muler counter.

Unit-IV

4. Explain principle of Centrifuge.

Or

Describe about paper Electrophores is technique.

SECTION C **12×4=48**

(Long Answer Type Questions)

Note : *Answer the following questions in* **500** *words.*

Unit-I

1. Describe principle and application of pH meter.

Or

Write down principle and application of spectrophotometer.

Unit-II

2. Give brief account on principle and application of Microscopy.

Or

Write down introduction, history and application of bioinformatics.

Unit-III

3. What is radioisotope technique describe it's application ?

Or

Describe autoradiography and it's application.

Unit-IV

4. Explain the principle and types of chromatography.

Or

Give an account of application and types of Electrophoresis.