

G-2/237/21

Roll No.

M.Sc. II Semester Examination, 2021**MICROBIOLOGY****Paper III****(Instrumentation and Technology)**

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 Questions)**

Choose the correct answer :

1. In $500 \times g$ what does represent in centrifugation.
 - (a) Gravitational force
 - (b) Centrifugal force is 500 times greater than earthly gravitational force
 - (c) Centrifugal force is 500 times less than the earthly gravitational force
 - (d) Earthly gravitational force
2. Which type of centrifugation depends on buoyant densities ?
 - (a) Isopycnic centrifugation

P.T.O.

- (b) Gradient centrifugation
- (c) Differential centrifugation
- (d) Density gradient centrifugation

3. Chromatogram is :

- (a) Solute concentration Vs Elution time
- (b) Solute concentration Vs Elution volume
- (c) Both A and B
- (d) Neither A nor B.

4. In chromatography which of the following can be used as mobile phase :

- (a) Solid and liquid
- (b) Liquid and gas
- (c) Liquid only
- (d) Gas only

5. Paper used in paper electrophoresis is/are :

- (a) Chromatography paper
- (b) Whatman filter paper
- (c) Cellulose acetate filter paper
- (d) All of above

6. SDS used in SDS PAGE is :

- (a) An anionic detergent
- (b) A cationic detergent
- (c) A nonionic detergent
- (D) An anionic exchanger

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7. Which of the following types of spectroscopy can tell us the most about the carbon framework of an organic compound.

- (a) UV-visible spectroscopy
- (b) Infrared spectroscopy
- (c) NMR spectroscopy
- (d) Mass spectroscopy

8. Emulsions in autoradiography contain a clear phase of :

- (a) Gelatin
- (b) Nylone
- (c) Lectin
- (d) Cellulose

SECTION B

4 × 6 = 24

(Short Answer Type Questions)

Note : Answer the following questions.

Unit-I

1. Write short note on any one of the following :

- (a) Sedimentation coefficient,
- (b) Spectroflurometry.

Unit-II

2. Write short note on any one of the following :

- (a) Microtomy,
- (b) Phase contrast microscope.

Unit-III

3. Write short note on any one of the following :

- (a) 2D electrophoresis,
- (b) Isoelectric focusing.

Unit-IV

4. Write short note on any one of the following :

- (a) Autoradiography,
- (b) RIA.

Section-C

4 × 12 = 48

(Long Answer Type Questions)

Note : Answer the following questions.

Unit-I

1. Explain the principle, instrumentation and applications of UV-visible spectrophotometer ?

Or

Write short note on the following :

- (a) Density gradient centrifugation,
- (b) Atomic Absorption spectroscopy.

Unit-II

2. Describe the principle, working and applications of Thin layer chromatography.

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Or

Write short note on the following :

- (a) Gel filtration chromatography,
- (b) Electron microscopy.

Unit-III

- 3.** Explain the principle, instrumentation and applications of polyacrylamide gel electrophoresis.

Or

Describe the principle, instrumentation and applications of lyophilization.

Unit-IV

- 4.** Discuss the principle, instrumentation and applications of NMR.

Or

Write short note on the following :

- (a) GM counter,
- (b) Gas Chromatography.

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