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(Printed Pages 3)

(20517)

Roll No. .....

B.Sc. (Micro)

# 3491

## B.Sc. (Microbiology) Examination, May 2017

## Analytical Techniques

(B-108)

*Time : Three Hours ]* *[Maximum Marks : 50*

**Note :** Attempt any **five** questions. **All** questions carry equal marks.

1. Define Chromatography. Also discuss its principle and different types. 10

2. Describe in detail the paper chromatography technique for the separation of different plant pigments. 10

P.T.O.

3. Write short notes on: 5+5

(a) Karyotyping

(b) Cell growth determination.

4. State the underlying principle of electrophoresis. Also discuss about SDS-PAGE. 10

5. Describe the principle and application of immunoelectrophoresis. 10

6. Comment on the following (any **two**):

(a) TLC and its uses 5+5

(b) Isoelectric Focussing

(c) Ion exchange chromatography.

7. What is fermenter? Draw a neat labelled diagram of fermenter and discuss its different parts in detail. 10

8. Write notes on cell sorting and cell fractionation. 10



9. Explain the following: 5+5

(a) Types of fermenters

(b) Equipments and supporting media of electrophoresis.

10. Comments briefly on any **two**: 5+5

(a) Auto-radiography

(b) Applications of radioisotope tracer techniques

(c) Down stream processing.

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B.Sc.(Microbio.)-I

# 3491

## B. Sc. (Microbiology) Examination, May 2018

### Analytical Techniques

### (B-108)

*Time : Three Hours]* *[Maximum Marks : 50*

*Note :* Attempt any *Five* questions. All questions carry equal marks.

1. What is Autoradiography ? Discuss its main principles and applications. 10

2. Comment on the following : 2½×4

   (i) Phases in Chromatography

   (ii) TEMED

   (iii) SDS

   (iv) Radioisotopes.

3. Write about the principle of TLC. Why TLC is superior to paper chromatography ? 10

4. Define any two of the following : 5+5
   (a) Nucleic acid staining
   (b) Band patterns
   (c) Cell sorting.

5. What is SDS-PAGE ? Write its principles and applications along with its limitations. 10

6. Write short notes on the following : 5+5
   (a) Chromosomal technique
   (b) Tracer technique.

7. Discuss the principles and applications of Immunoelectrophoresis. Also discuss its role in Medical Microbiology. 10

8. What is fermenter ? Discuss about its various types with the help of suitable diagrams. 10

9. Discuss the principle and applications of ion-exchange chromatography used in the separation of biomolecules. 10





10. Define Chromatography. Also discuss its various types with special reference to gel filtration chromatography. 10

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Total Questions : **10** ] [ Printed Pages : **2**

# 3491

## B.Sc. (Microbiology) Ist Year Examination, May-2019

## ANALYTICAL TECHNIQEUS

**(B-108)**

**[B.Sc. (Micro)]**

*Time : 3 Hrs. ]* *[ M.M. : 50*

*Note* :– Attempt any *five* questions. All questions carry equal marks.

1. What is the basic difference between chromatography and electrophoresis ? Compare their advantages and disadvantages. 10

2. Discuss the principle and applications of gas chromatography. 10

3. What is immunoelectrophoresis ? Discuss its principle, protocol and applications. 10

4. Discuss the use of any *two* in analytical techniques :

   (a) Polyacrylamide

   (b) Centrifuge machine

   (c) Fuelgen staining 5,5

5. With the help of a suitable example, explain the application of radio isotope tracer technique. 10

6. What is Centrifugation ? Discuss the principles involved in centrifugation. What do you mean by 'rpm' and '200 g' ? What do you mean by '80 S' ? Draw a diagram only to show different components of a centrifuge. 10

7. Draw a well-labelled diagram of a typical fermenter. Explain the functions of different parts. 10

8. Describe the principle and procedure of cell sorting. 10

9. What do you mean by 'Karyotype' ? Describe procedure for Karyotyping. 10

10. Compare the following :

   (a) Gel filtration chromatography and ion exchange chromatography

   (b) Cell sorting and cell fractionation 5,5