

(6 pages)

Reg. No. :

Code No. : 6449

**Sub. Code : PMBE 16/
ZMBE 11**

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER

First Semester

Microbiology — Elective

**BIOCHEMICAL TECHNIQUES AND
INSTRUMENTATION**

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What is the SI unit of Viscosity?
 - (a) Candela
 - (b) Poiseiulle
 - (c) Newton
 - (d) No units

2. Which of the following is used as an indicator to the titration of a strong acid and a weak base?
- (a) Phenolphthalein
 - (b) Thymol blue
 - (c) Fluorescein
 - (d) Methyl orange
3. Which of the following is used as a media for density gradient centrifugation?
- (a) Agarose
 - (b) Ficoll
 - (c) Luriabroth
 - (d) Propylene glycol
4. Centrifugation is based on
- (a) Patrick's law
 - (b) Mc Laren's law
 - (c) Stoke's law
 - (d) Stain's law
5. Ion exchange chromatography is based on the
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- (a) Electrostatic attraction
 - (b) Electrical mobility of Ionic species
 - (c) London force
 - (d) Size exclusion
6. Gas chromatography can be performed in which of the following ways?
- (a) only in columns
 - (b) only on plane surfaces
 - (c) either in columns or on plane surfaces
 - (d) Neither in columns nor on plane surfaces

7. Which of the following factors does not influence electrophoretic mobility?
- (a) Molecular weight
 - (b) Shape of molecule
 - (c) Size of molecule
 - (d) Stereo chemistry of molecule
8. Sodium Dodecyl Sulfate (SDS) used in PAGE is _____
- (a) An anionic detergent
 - (b) A cationic detergent
 - (c) A non-ionic detergent
 - (d) An anionic exchanger
9. Which of the following emitted particles consist of two protons?
- (a) alpha
 - (b) beta
 - (c) gamma
 - (d) zeta
10. In Atomic absorption spectroscopy, with what materials are the cathode in Hollow cathode lamp constructed?
- (a) Tungsten
 - (b) Quartz
 - (c) Element to be investigated
 - (d) Aluminium

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write a note on Colorimetry.
Or
(b) What are the significant regions in the titration curve?
12. (a) Write a note on density gradient centrifugation.
Or
(b) Describe various mobile phase solvent system used in column chromatography.
13. (a) Mention the factors that will affect centrifugal force.
Or
(b) Add a note on thin layer chromatography.
14. (a) Describe the mechanism by which proteins are resolved in isoelectric focusing.
Or
(b) Comment on Autoradiography.

15. (a) Write a note on Raman Spectroscopy.

Or

(b) How is radioactivity measured – in Quantity?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Elaborate the principle and applications of Flame photometry.

Or

(b) Explain the principle and applications of U.V. spectrometry.

17. (a) Narrate the safety considerations when operating centrifuge.

Or

(b) Explain about different rotors used in centrifuge.

18. (a) Write in detail about Working mechanism of Gas chromatography.

Or

(b) How will you separate aminoacids? Adopt a suitable chromatography method.

19. (a) Adopt a suitable electrophoresis technique for the separation of Nucleic acids.

Or

(b) What are all the immunological methods used for detecting specific Antigens of Clinical importance?

20. (a) Draw a sketch on structure component of AAS and its applications.

Or

(b) Explain in detail about NMR spectroscopy.
