



A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE
(AUTONOMOUS) (Grant-in-Aid)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Master of Science (Semester- 1) External Examination – 2025
PS01MAZOO03: BIOINSTRUMENTATION

Date: 13-11-2025, THURSDAY

Time: 11:00 AM TO 01:30 PM

Total marks: 50

Que 1: Multiple choice questions.

(10 Marks)

1. **DNA is composed of**
A) Amino acids
B) Sugars
C) Nucleotides
D) Lipids
2. **Agarose gel electrophoresis separates DNA based on**
A) Size
B) Charge
C) Shape
D) Density
3. **Mass spectrometry determines**
A) Molecular weight
B) Protein charge
C) DNA sequence
D) Cell shape
4. **UV spectroscopy can detect**
A) DNA
B) Both A and B
C) Proteins
D) Lipids
5. **Fluorescence microscopy detects**
A) Absorption of light
B) Refraction
C) Emission of light
D) Scattering
6. **Capillary electrophoresis separates molecules by**
A) Size and charge
B) Shape only
C) Density
D) Color
7. **DNA polymerase synthesizes DNA in**
A) 3' to 5' direction
B) Both directions
C) 5' to 3' direction
D) Randomly
8. **SDS denatures proteins by**
A) Breaking disulfide bonds
B) Binding DNA
C) Unfolding secondary and tertiary structure
D) Binding RNA
9. **Electron microscopy uses**
A) Electrons to form images
B) Magnetic fields
C) Light waves
D) Sound waves
10. **Phase contrast microscopy is useful for viewing**
A) Unstained live cells
B) Protein structure
C) Fixed, stained samples
D) DNA



Q.2 Explain the principle and applications of agarose gel electrophoresis. (10 Marks)

OR

Q.2 Explain Thin Layer Chromatography methodology and applications. (10 Marks)

Q.3 Describe the principle and advantages of phase contrast microscopy. (10 Marks)

OR

Q.3 Explain the working mechanism of Confocal microscope. (10 Marks)

Q.4 What is spectroscopy? Describe the applications of UV visible spectroscopy. (10 Marks)

OR

Q.4 Write a short note on Mass Spectroscopy. (10 Marks)

Q.5 Explain Northern blotting techniques with their applications. (10 Marks)

OR

Q.5 Explain Western blotting technique in details. (10 Marks)