Q. P. Code: 23075

2 ½ Hours

Total Marks: 75

1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labelleddiagrams** wherever necessary.
4. Use of **log tables** and **non-programmable calculator** is **allowed**.
5. For **Q 2, Q 3 and Q 4** attempt A and B **OR** C and D.

Q 1 Do as directed (Any fifteen) **15**

1. Define the term 'dispersion of light'.
2. Who first demonstrated the phenomenon of interference of light?
3. What does the term 'active medium' in a laser refer to?
4. In colorimetric assay, a plot of concentration of standards versus their respective absorbance is called _____.
5. The focusing of electron beams in an electron microscope is done using _____.
6. _____ microscopy allows the localisation of molecules within the cellular microenvironment for TEM and on the cell surface for SEM.
7. Give any one application of UV-Vis spectroscopy.
8. The maximum displacement of a vibrating particle from its position of rest is called its _____.
9. In a _____ wave the particles vibrate at right angles to the direction of propagation of the wave.
10. In _____ type of magnetism, the strength of the resultant magnetic field decreases on application of an external magnetic field.
11. Explain the term 'viscosity of a fluid.'
12. The ability of a liquid to maintain contact with a solid surface is called ____.
13. The unit used for measurement of magnetic strength is _____.
14. The principle mode of heat transfer in solids is _____.
15. Acronym APS in PAGE/SDS-PAGE stands for _____.
16. The support matrix in PAGE is _____.
17. Agarose is obtained from _____.
18. Define: 'Zwitterion'.

19. Define : 'tracking dye' as used in electrophoresis.

20. Name any one stain used to detect proteins on PAGE

Q 2 A	Explain construction of single and double beam spectrophotometer.	**08**
Q 2 B	Compare the properties of a laser light against normal light.	**07**
	OR	
Q 2 C	Explain sample preparation for SEM and TEM.	**08**
Q 2 D	Explain the laws governing light absorption. Write a note on its significance in quantitative estimation of molecules.	**07**
Q 3 A	What is a thermocouple? Explain its use in measurement of temperature.	**08**
Q 3 B	Enlist the applications of ultrasound waves.	**07**
	OR	
Q 3 C	Describe the construction and use of an Ostwald's viscometer.	**08**
Q 3 D	Give an account of different types of magnetism observed in matter.	**07**
Q 4 A	Differentiate between AGE and PAGE.	**08**
Q 4 B	Describe the general technique of paper electrophoresis.	**07**
	OR	
Q 4 C	Explain the general principle of electrophoresis	**08**
Q 4 D	What is native-PAGE? Explain its principle.	**07**
Q 5	Write Short notes on **any three** of the following	**15**
a	Immuno-electron microscopy.	
b	Characteristics of electromagnetic waves.	
c	Doppler Effect.	
d	Two-Dimensional electrophoresis- Principle	
e	Electrophoretic mobility.	