GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Fourth Semester - Regular) Examinations, May – 2024

22BBTPC24003- Bio - Analytical Techniques

(Biotechnology)

Time: 3 hrs Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Explain the principle behind IR spectroscopy.	CO1	K2
b. State the imaging mechanisms of scanning electron microscopy (SEM).	CO1	K2
c. Describe a scenario where native PAGE would be preferred over SDS-PAGE.	CO2	K3
d. Explain the concept of retention time in chromatography and how it is influenced.	CO3	K3
e. Mention the safety aspects of handling radioactive materials in laboratory.	CO4	K2

PART – B **(15 x 4=60 Marks)**

Answer ***ANY FIVE*** the questions	Marks	CO #	Blooms Level
2. a. Define spectroscopy? Explain the principle, instrumentation and applications of Mass spectroscopy.	2+13	CO1	K3
(OR)			
b. Discuss the principle and applications of NMR.	7	CO1	K3
c. Contrast and compare the principle of TEM and SEM in image formation.	8	CO1	K2
3.a. What is PCR? Describe the principle, procedure and applications of PCR.	2+13	CO2	K3
(OR)			
b. Discuss the principle of agarose gel electrophoresis.	7	CO2	K3
c. Give a note on Northern blotting .	8	CO2	K2
4.a. What is chromatography? Explain the general principle and classification of chromatography.	2+13	CO3	K3
(OR)			
b. Describe the principle and applications of gel exclusion chromatography.	8	CO3	K2
c. Give a note on classification of chromatography.	7	CO3	K2
5.a. What is radioactivity? Explain the principle and procedure of Liquid-scintillation counting method of radioactivity measurement.	2+13	CO4	K3
(OR)			
b. Give a note on Geiger-Muller counting .	8	CO4	K3
c. Discuss the principle and applications of autoradiography.	7	CO4	K3

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