QPC: RJ19BTECH151 AR 19 Reg. No

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Fourth Semester – Regular) Examinations, June – 2021

BPCBT4030 – Bio-Analytical Techniques

(Biotechnology)

Time: 2 hrs Maximum: 50 Marks

Answer ALL Questions

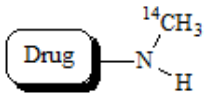
The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) **(1 x 10 = 10 Marks)**

Q.1. Answer ***ALL*** questions		[CO#]	[PO#]
a.	Which compound are used as diluent in IR sampling ?	CO1	PO1
	(i) alkali halide (ii)Ketone		
	(iii)Aldehyde (iv) Acetone		
b.	Which of the following component of TEM focuses the beam of electrons on the sample?	CO1	PO1
	(i)Ocular lens (ii) condenser lens		
	(iii) stage (iv) Column		
c.	Electron Microscope can give a magnification up to _____	CO1	PO1
	(i) 400,000X (ii) 100,000X		
	(iii) 15000X (iv) 100X		
d.	Which of the following statements is true about migration of biomolecules?	CO2	PO1
	(i) The rate of migration is directly proportional to the resistance of medium (ii) Rate of migration is directly proportional to current		
	(iii) Low voltage is used for separation of high mass molecules (iv) Rate of migration is inversely proportional to current		
e.	The electrophoretic mobility denoted as μ is mathematically expressed as:	CO2	PO1
	(i) VE (ii)E/V		
	(iii)1/EV (iv) V / E		
f.	At what speed do you centrifuge blood?	CO2	PO1
	(i) 2200-2500 RPM (ii) 3000-3200 RPM		
	(iii) 1000-1500 RPM (iv) 4000 RPM		
g.	Which of the following is not a Column-type Liquid chromatography?	CO3	PO1
	(i) Gel permeation (ii) Ion exchange		
	(iii)Liquid-Solid (iv) Paper		
h.	In which type of quenching, the radiation emitted by the isotope is not detected due to absorption of the radiation by the sample itself?	CO4	PO1
	(i)Chemical quench (ii) Interference quench		
	(iii) Colour quenching (iv) Self-absorption		
i.	Which of the following isotopes is not a radioisotope?	CO4	PO1
	(i)Carbon- 13 (ii) carbon -14		
	(iii) Tritium (iv) Sulphur-35		
j.	Which of the following detection methods is not commonly used to detect isotopically labelled drug metabolites?	CO4	PO1
	(i) NMR spectroscopy (ii)Infrared spectroscopy		
	(iii) Scintillation counting (iv) Mass spectrometry		

PART – B: (Short Answer Questions) **(2 x 5 = 10 Marks)**

Q.2. Answer ***ALL*** questions	[CO #]	[PO#]
a. Define Beer-lambert Law.	CO1	PO1
b. What is error prone PCR?	CO2	PO1
c. Differentiate between SDS-PAGE and native PAGE.	CO2	PO1
d. Differentiate between partition and adsorption chromatography.	CO3	PO1
e. What problem might you foresee in labelling a drug as shown?	CO4	PO1



PART – C: (Long Answer Questions) **(6 x 5 = 30 Marks)**

Answer ***ANY FIVE*** questions	Marks	[CO#]	[PO#]
3. Define fluorescence. Describe mechanism of fluorescent spectroscopy.	(6)	CO1	PO1
4. Describe the working principle and method of NMR spectroscopy in protein engineering.	(6)	CO1	PO1
5. Define blotting. Name the blotting technique which is used for detection of a specific DNA sequence in DNA samples and its subsequent hybridization.	(6)	CO2	PO1
6. Explain in short about Southern blotting with diagram.	(6)	CO2	PO1
7. Explain HPLC. What do you understand by the term retention time in HPLC?	(6)	CO3	PO1
8. What is difference between normal phase and reversed phase chromatography?	(6)	CO3	PO1
9. Explain with appropriate diagrams the working of Solid and liquid scintillation	(6)	CO4	PO1
10. Write down the safety aspects known by you for handling radioactive elements	(6)	CO4	PO1

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