

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

Second Semester

Biomedical Engineering

BM3252/UPHT24206-Medical Physics

Regulations – 2021/2024

Duration : 3 Hrs

Maximum : 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	Questions	BLT	CO	Marks
1.	List any two properties of electromagnetic radiation.	L1	1	2
2.	Find 20/20 vision with a Snellan chart.	L1	1	2
3.	Compare natural and artificial radioactivity.	L2	2	2
4.	Select any two radionuclides produced by Cyclotron.	L1	2	2
5.	If a particulate radiation produces 45,000 ion pairs per centimeter in air, tell the LET of the radiation.	L1	3	2
6.	Recall Bremsstrahlung radiation.	L1	3	2
7.	Show the inverse square law.	L2	4	2
8.	Outline the concept of LD 50.	L2	4	2
9.	Explain the absorption of ultrasound by different body tissues.	L2	5	2
10.	Summarize the concept of cavitations.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a Explain the concept of tissue as a leaky dielectric.	L2	1	16
	Or			
	b Illustrate the effect of low frequency and high frequency electromagnetic radiation on human beings.	L2	1	16
12.	a Analyze the various modes of radioactive decay with suitable examples.	L4	2	16
	Or			
	b Discover the methods of generating radionuclide by cyclotron.	L4	2	16
13.	a i Develop the interaction of charged particles with matter.	L3	3	10
	i Outline specific ionization, LET and range.	L2	3	6

Or

	b	Develop the various mechanisms of interactions of X-rays and gamma radiations with matter.	L3	3	16
14.	a	Explain in detail stochastic and non-stochastic effects of radiation.	L2	4	16
		Or			
	b	Summarize the conditions, classification and stages of acute radiation syndrome on human tissue.	L2	4	16
15.	a	Asses the principle and the various process involved in ultrasonic image generation.	L5	5	16
		Or			
	b	Interpret the various ultrasonic scanning methods.	L5	5	16