U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

May / June 2025 Semester End Main Examinations

Programme: B.E. **Semester: VIII**

Branch: Institutional Elective **Duration: 3 hrs.**

Course Code: 23PY8OERHP **Max Marks: 100**

Course: Radiation Hazards and Protection

Instructions: 1. Answer any FIVE full questions, choosing one full question from each Module.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		MODULE - I	*CO*	*PO*	Marks
1	a)	Discuss different radioactive emissions.	CO1	PO1	**10**
	b)	What are the main sources of natural radioactivity? Explain.	CO1	PO1	**10**
		OR			
2	a)	Describe the half value layer and linear attenuation coefficient.	CO1	PO1	**10**
	b)	Explain the following terms: (a) Intensity (b) exposure (c) radiation dose and (d) absorbed dose	CO1	PO1	**10**
		MODULE - II			
3	a)	Describe the process involved in radiation monitoring and decontamination procedures.	CO1	PO1	**10**
	b)	Mention and explain the planning of nuclear medicine laboratories.	CO1	PO1	**10**
		OR			
4	a)	List out and explain the radiation monitoring instruments used for area monitoring and individual monitoring.	CO1	PO1	**10**
	b)	Explain in detail the basic safety standards as per IAEA.	CO1	PO1	**10**
		MODULE - III			
5	a)	Explain the general techniques for disposing of radioactive wastes.	CO1	PO1	**10**
	b)	Discuss the basic radiation surveillance procedures.	CO1	PO1	**10**
		OR			
6	a)	Mention the different steps involved in regulatory aspects & licensing for production and usage of radionuclides.	CO1	PO1	**10**

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		b)	Discuss different radiation emergencies.	CO1	PO1	**10**
			MODULE - IV			
	7	a)	Explain the working of gamma camera with neat labeled diagram.	CO1	PO1	**10**
		b)	Mention and explain the applications of accelerators.	CO1	PO1	**10**
			OR			
	8	a)	Describe the principle and working of positron emission tomography.	CO1	PO1	**10**
		b)	Write in detail the experimental procedure of gamma ray spectroscopy with diagram.	CO1	PO1	**10**
			MODULE - V			
	9	a)	Discuss in detail the medical and agriculture applications of radioisotopes.	CO1	PO1	**10**
		b)	Elucidate the different types of materials modifications done using radiations.	CO1	PO1	**10**
			OR			
	10	a)	What is mechanism of non-destructive testing? Explain different radiation processing technologies.	CO1	PO1	**10**
		b)	Write a note on industrial process tomography, and advances in industrial radiography.	CO1	PO1	**10**

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