R19

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
M.Tech I Year I Semester Regular Examinations January 2020
NUCLEAR ENGINEERING
(THERMAL ENGINEERING)

Time: 3 hours   Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Explain the nuclear fission process with a neat sketch.	6M
	b	Distinguish between nuclear fission and fusion.	6M

OR

2	a	Explain the process of breeding with an example.	6M
	b	How to convert nuclear fuels into fertile materials?	6M

UNIT-II

3	a	Mention various parameters considered in neutron transport calculations.	6M
	b	What do you mean by the following (i) Elastic Scattering (ii) Inelastic Scattering (iii) Capture (iv) Fission	6M

OR

4	a	What do you understand by diffusion theory of approximation?	6M
	b	Distinguish between Elastic and inelastic collisions of atoms.	6M

UNIT-III

5	a	Name and Explain various critical parameters in thermal reactors.	6M
	b	What is the difference between Artificial Radioactivity and Natural Radioactivity?	6M

OR

6	a	Name various parts of a Reactor and also mention the uses of each part.	6M
	b	How BWR differs from PWR.	6M

UNIT-IV

7	a	Mention the significance of point kinematic equations in the nuclear power.	6M
	b	How do you dispose radioactive materials without damaging environment?	6M

OR

8	a	What do you understand by Fission Product poison and reactivity coefficients	6M
	b	List out the safety measures for the nuclear power plants.	6M

UNIT-V

9	a	Mention the various safety precautions of Reactor core in nuclear power plant.	6M
	b	How reactors are useful in defense. Explain.	6M

OR

10	a	Write equations for temperature distribution in reactor core.	6M
	b	Heat flux plays very important role in reactor core. Justify.	6M

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