Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree (S, FE) Examination May 2024 (2015 Scheme)

Course Code: MR 403

Course Name: NANOTECHNOLOGY

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1		Outline the effects of surface area to volume ratio with examples.	(5)
2		Mention the different types of nanostructure fabrication methods. Explain any one method.	(5)
3		Explain the process of transmission electron microscopy with neat sketch.	(5)
4		Why some materials are called smart materials? Explain about the smart materials.	(5)
5		Discuss about the precautions required for the prevention of nanoparticle exposure	(5)
6		Explain the process of photolithography.	(5)
7		Discuss about nanobots and its working	(5)
8		List the advantages and disadvantages of targeted drug delivery system.	(5)

PART B

Answer any three full questions, each carries 10 marks.

9	a)	Describe quantum dots. How they are classified?	(5)
	b)	Elucidate the different areas of applications of quantum dots.	(5)
10	a)	Explain the solgel synthesis with the neat sketch of processing steps.	(10)
11	a)	Elucidate the various methods for the preparation of carbon nanotubes.	(10)
12	a)	Discuss about nanofluids. Describe the various methods to prepare nanofluids.	(6)
	b)	Mention the classification of nanocomposites.	(4)
13	a)	Discuss in detail about nanoclays and its preparation	(6)
	b)	Explain nanowires with its properties.	(4)

PART C

Answer any two full questions, each carries 15 marks.

14	a)	Enumerate the soft lithographic process. Sketch the methods of fabrication and explain the methods of fabrication.	(10)
	b)	Describe the photoresist materials.	(5)
15	a)	Discuss about the problems associated with nanoparticles	(5)
	b)	Enumerate the potential human hazards for nanoscale particulates. How it can be controlled?	(10)
16	a)	Explain in detail on the applications of nanotechnology in different fields.	(7)
	b)	Discuss about nanoelectronics and nanoelectronic devices in detail	(8)
17	a)	Elucidate the different types of targeted drug delivery system.	(9)
	b)	Write short notes on MEMS.	(6)

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