

First Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025

Smart Materials and Systems

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.**2. M : Marks, L: Bloom's level, C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	With a neat sketch, explain Honey comb structured materials.	10	L2	CO1
	b.	Define Nano materials. List their properties and applications.	10	L1	CO1
OR					
Q.2	a.	What are the different types of emerging materials? Differentiate between conventional and Smart Materials.	10	L2	CO1
	b.	Illustrate the emerging sustainable byproducts of Fly Ash with working principle.	10	L3	CO1
Module – 2					
Q.3	a.	Define prefabrication? List the types of prefabrication? Mention its advantages.	10	L1	CO2
	b.	What is modular coordination? Explain the concept with usefull diagram.	10	L2	CO2
OR					
Q.4	a.	Explain in detail the concept of manufacturing building components with applications.	10	L1	CO2
	b.	Write a note on transportation and installation.	10	L3	CO2
Module – 3					
Q.5	a.	What is Strain? Explain the concept with neat diagram.	10	L2	CO3
	b.	Explain the concept of Piezo electric sensor with neat sketch.	10	L3	CO3
OR					
Q.6	a.	Define strain gauge. Explain the different strain gauges with sketch.	10	L4	CO3
	b.	Explain the concept of piezoelectric ceramic processing with neat sketch.	10	L4	CO3
Module – 4					
Q.7	a.	Define BIM. Explain the concept of BIM. Mention its application.	10	L1	CO4
	b.	Briefly explain the concept of BIM in building design.	10	L1	CO4

OR					
Q.8	a.	What is IBMS? Explain the concept with necessary diagram of IBMS.	10	L2	CO4
	b.	List the types of IBMS. Explain any two of it.	10	L3	CO4
Module – 5					
Q.9	a.	Define 3D-printing. Explain the importance of 3D-printing in modern world with example.	10	L3	CO5
	b.	Explain the common technologies used in 3D printing? Mention its advantages.	10	L4	CO5
OR					
Q.10	a.	What is 3D modelling? Explain with neat sketch, the concept of 3D-modelling.	10	L3	CO5
	b.	Write a note on Data conversion and Data Transmission.	10	L1	CO5

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