



Second Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026  
**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					
Q.1	a.	What is emerging material? Explain types of material and also 5 basic materials.	M 10	L L1	C CO1
	b.	What is the structure of a honeycomb and the 3-basic structure of carbon? Briefly explain.	10	L2	CO1
OR					
Q.2	a.	Explain the Nanomaterials and its types.	10	L2	CO1
	b.	Define the engineered polymers with an example.	10	L1	CO1
Module - 2					
Q.3	a.	Explain the prefabrication in building and classification of prefabricated systems.	10	L1	CO2
	b.	Explain modular coordination and what is difference between modular coordination and prefabrication.	10	L3	CO2
OR					
Q.4	a.	What is Modular Standardization? Mention the types and explain.	10	L2	CO2
	b.	Explain the methods of Product Management.	10	L2	CO2
Module - 3					
Q.5	a.	Explain the meaning of piezo electricity and principle of piezoelectric.	10	L2	CO2
	b.	Define piezo sensor and its principle.	10	L2	CO3
OR					
Q.6	a.	What is a strain gauge sensor and what is function of sensor?	10	L3	CO3
	b.	Differentiate between Strain gauge and Piezoresistive sensor.	10	L2	CO3
Module - 4					
Q.7	a.	What are the advantage and disadvantages of Building Information Machining? (BIM)	10	L3	CO4
	b.	What is IBMS? Why is IBMS an advantage?	10	L3	CO4

OR

Q.8	a.	Explain few necessity factors in IBMS.	10	L2	CO4
	b.	How IBMS system works, briefly explain.	10	L2	CO4

Module – 5

Q.9	a.	What is important about 3D printing? What are its advantages and disadvantages?	10	L3	CO4
	b.	What are the classification of 3D printing? Explain stereolithography (SLA) process.	10	L3	CO4

OR

Q.10	a.	Explain common 3D printing technologies and their process chains.	10	L2	CO5
	b.	Explain post-processing techniques in 3D printing.	10	L2	CO5

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