



CBCS SCHEME

BETCK205A

Second Semester B.E./B.Tech. Degree Examination, June/July 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			M	L	C
Q.1	a.	Discuss in detail the significance of honey comb structure in composite.	10	L2	CO1
	b.	Enumerate the advantages, disadvantages and applications of Nanomaterials.	10	L2	CO1
OR					
Q.2	a.	Discuss the applications of Smart Nanomaterials.	10	L2	CO1
	b.	Briefly discuss the various types of engineered polymers in smart structures/systems.	10	L2	CO1
Module – 2					
Q.3	a.	Define Prefabricated Building System and explain its types.	10	L2	CO2
	b.	Write the advantages and limitations of Prefabrications.	10	L2	CO2
OR					
Q.4	a.	How prefabricated building components are made and list its benefits.	10	L2	CO2
	b.	Explain the different levels of standardization in detail.	10	L2	CO2
Module – 3					
Q.5	a.	Define Strain Gauge. Explain the different strain gauges with sketch.	10	L3	CO3
	b.	Explain the concept of piezoelectric ceramic processing with neat sketch.	10	L3	CO3
OR					
Q.6	a.	Define smart composites and explain classification of smart composite.	10	L3	CO3
	b.	Briefly discuss about history and working principle of Shape Memory Alloy.	10	L3	CO3
Module – 4					
Q.7	a.	What is the importance of BIM and list out the advantages and limitations?	10	L2	CO4
	b.	Explain in detail the various types of IBMS.	10	L2	CO4
OR					
Q.8	a.	Discuss in brief the necessity of BIM and list out the applications in Building Design.	10	L2	CO4
	b.	Explain in detail the different types of BIM in building design.	10	L2	CO4
Module – 5					
Q.9	a.	Explain the advantages and applications of 3D printing over conventional manufacturing.	10	L2	CO5
	b.	What is 3D Printing and list out the different techniques of 3D printing and explain any one of them.	10	L2	CO5
OR					
Q.10	a.	Explain in detail the following : i) Data Generation ii) Data Conversion with respect to 3D printing	10	L2	CO5
	b.	Explain the following : i) 3D Modeling advantages ii) Post Processing in 3D printing	10	L2	CO5
