



# CBCS SCHEME

BETCK105A/BETCKA105

## First Semester B.E./B.Tech. Degree Examination, June/July 2023 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.	Explain Honey Comb Structure with neat diagram.	8	L2	CO1
	b.	Explain Nano Materials.	8	L2	CO1
	c.	Explain the significance of Honey Comb Structure.	4	L2	CO1
OR					
Q.2	a.	Explain Engineered Polymers.	8	L2	CO1
	b.	What is Emerging Sustainable by products (Fly ash and GGBS)?	8	L1	CO1
	c.	What is construction chemicals?	4	L1	CO1
Module – 2					
Q.3	a.	Define the prefabricated building and explain the types of prefabrication elements.	8	L2	CO2
	b.	What is Modular Coordination (MC)? Explain advantages and disadvantages of MC.	8	L2	CO2
	c.	Explain the objectives of modular coordination.	4	L2	CO2
OR					
Q.4	a.	Explain factors and types of standardization.	8	L2	CO2
	b.	Explain the transportation and installation.	8	L2	CO2
	c.	Explain systems and production.	4	L2	CO2
Module – 3					
Q.5	a.	What are smart materials? Explain the features of smart materials.	8	L2	CO3
	b.	Explain the need and applications of smart materials.	8	L2	CO3
	c.	Define the term: (i) Sensors (ii) Actuators	4	L2	CO3
OR					
Q.6	a.	Define piezo-electricity and explain the features of piezo-electricity.	8	L2	CO3
	b.	Explain the principles of piezo-electricity and its applications.	8	L2	CO3
	c.	Explain the classification of polymers.	4	L2	CO3
Module – 4					
Q.7	a.	Define BIM and explain the necessity of BIM.	8	L2	CO4
	b.	Explain the advantages of BIM.	8	L2	CO4
	c.	What is BIM in Building Design?	4	L1	CO4
OR					
Q.8	a.	Define IBMS. Explain necessity and advantages of IBMS.	8	L2	CO4
	b.	Explain Infrastructure Design and Construction.	8	L2	CO4
	c.	Explain types of IBMS.	4	L2	CO4
Module – 5					
Q.9	a.	What is 3-D printing? Explain the importance of 3-D printing.	8	L2	CO5
	b.	Explain the Historic Development of the 3-D printing.	8	L2	CO5
	c.	Explain common terminologies of 3-D printing.	4	L2	CO5
OR					
Q.10	a.	Define 3-D modeling and explain Data Conversion and Transmission.	8	L2	CO5
	b.	Explain checking and preparation of 3-D modeling.	8	L2	CO5
	c.	Explain the applications of 3-D modeling.	4	L2	CO5

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