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BETCK205A

Second Semester B.E./B.Tech. Degree Examination, June/July 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.	Briefly explain the types of Honey Combs.	10	L2	CO1
	b.	Discuss the physical properties of nano materials which are different from bulk (macro scale) materials.	10	L2	CO1
		OR			
Q.2	a.	What are polymers? Briefly explain and classify.	10	L2	CO1
	b.	With a chemical composition write the physical properties of GGBS.	10	L2	CO1
		Module – 2			
Q.3	a.	What are the principles of prefabrication techniques and explain the advantages and disadvantages?	10	L2	CO2
	b.	Explain the production process of prefabricated structural elements.	10	L2	CO2
		OR			
Q.4	a.	List and explain classification of prefabricated system.	10	L2	CO2
	b.	Explain the standardization in detail and factors influencing standardization.	10	L2	CO2
		Module – 3			
Q.5	a.	With neat figure explain working of piezoelectric force sensor and piezoelectric pressure sensor.	10	L2	CO3
	b.	What are Smart Materials? Explain its application in various fields?	10	L2	CO3
		OR			
Q.6	a.	Explain working of strain gauge and shear sensor with neat sketch.	10	L2	CO3
	b.	Explain the working of cantilever piezoelectric accelerometer.	10	L2	CO3
		Module – 4			
Q.7	a.	What is integrated building management system? Explain briefly.	10	L2	CO4
	b.	Define BIM. Explain the necessity and advantages of BIM.	10	L2	CO4

		OR			
Q.8	**a.**	What are the types of IBMS? Explain each briefly.	**10**	**L2**	**CO4**
	b.	With a neat block diagram explain IBMS architecture.	**10**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	Explain Fused Deposition Modeling (FDM) with neat sketch and write any five application of FDM.	**10**	**L2**	**CO5**
	b.	Explain the process chain of 3D printing with a block diagram.	**10**	**L2**	**CO5**
		OR			
Q.10	**a.**	Summarize the history of additive manufacturing technology.	**10**	**L2**	**CO5**
	b.	List and explain the advantages of 3D printing.	**10**	**L2**	**CO5**

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