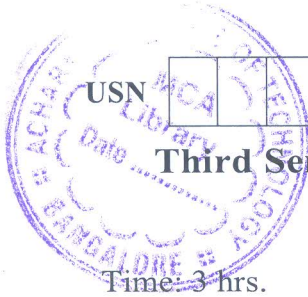


# CBCS SCHEME

BME306B



## Third Semester B.E./B.Tech. Degree Examination, June/July 2024 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.	What are smart materials? Justify their need in present context with examples.	10	L1	CO1
	b.	State important characteristics of Smart Structures.	10	L1	CO1
<b>OR</b>					
Q.2	a.	Explain the classification of Smart Structures.	10	L2	CO1
	b.	Explain the application areas of Smart Systems.	10	L2	CO1
<b>Module – 2</b>					
Q.3	a.	List the common applications of piezo-electric materials.	10	L1	CO2
	b.	List the materials that exhibit piezo-resistive effect and state their applications.	10	L1	CO2
<b>OR</b>					
Q.4	a.	With a suitable sketch, explain Piezo-electric effect.	10	L2	CO2
	b.	With a suitable sketch, explain Ferroelectricity effect and mention its applications.	10	L2	CO2
<b>Module – 3</b>					
Q.5	a.	Explain shape memory effect with a neat sketch.	10	L2	CO3
	b.	List the advantages and disadvantages of shape memory alloys.	10	L1	CO3
<b>OR</b>					
Q.6	a.	Explain shape memory ceramics.	10	L2	CO3
	b.	Explain shape memory polymers.	10	L2	CO3
<b>Module – 4</b>					
Q.7	a.	Explain the characteristics and applications of smart polymers.	10	L2	CO4
	b.	List the advantages and disadvantages of thermo responsive polymers.	10	L1	CO4
<b>OR</b>					
Q.8	a.	Explain the properties and applications of electroactive polymers.	10	L2	CO4
	b.	List the advantages and disadvantages of electro active polymers.	10	L1	CO4
<b>Module – 5</b>					
Q.9	a.	Explain any 2 optically activated polymers.	10	L2	CO5
	b.	Explain elastic memory composites.	10	L2	CO5
<b>OR</b>					
Q.10		Write a note on following : i) Sensors ii) Actuators iii) Transducers iv) Chemical Gels	20	L1	CO5

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