

CBCS SCHEME



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BMT303

Third Semester B.E./B.Tech. Degree Examination, June/July 2024 Material Science and Manufacturing Technology

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.	Differentiate between crystalline and amorphous solids.	08	L2	CO1
	b.	Define atomic packing factor. Find the atomic packing factor of hexagonal dose packed unit cells.	08	L1	CO1
	c.	Briefly explain the steps to prepare a specimen for microstructural examination	04	L2	CO1
OR					
Q.2	a.	Define True stress and True strain. Show that $\sigma' = \sigma(\epsilon + 1)$ where $\sigma =$ Engg/conventional stress , $\sigma' =$ Truress , $\epsilon =$ Engg/conventional strain , $\epsilon' =$ Truestrain.	08	L3	CO1
	b.	Explain the mechanism of strengthening in metals.	08	L2	CO1
	c.	Briefly explain (i) Toughness (ii) Resilience	04	L2	CO1
Module – 2					
Q.3	a.	What are composites? Discuss the functions of the matrix and the reinforcement in composite materials.	10	L2	CO2
	b.	Give the classification of composite materials and explain them briefly.	10	L2	CO2
OR					
Q.4	a.	Briefly explain piezoelectric materials and electrostrictive materials.	10	L2	CO2
	b.	What is the structure of smart materials? Why are smart materials used?	10	L1	CO2
Module – 3					
Q.5	a.	Write a short note on manufacturing process. Briefly explain the classification of manufacturing process.	10	L2	CO3
	b.	Define casting. Briefly explain the various steps involved in casting.	10	L1	CO3
OR					
Q.6	a.	With a neat sketch, explain the working principle of cupola furnace.	10	L2	CO3
	b.	Explain with a neat sketch, centrifugal casting process.	10	L2	CO3
Module – 4					
Q.7	a.	Define welding. Explain the classification of welding process.	10	L1	CO4
	b.	Illustrate the working principle of metal arc welding (MAW) with its advantages , disadvantages and applications.	10	L3	CO4
OR					
Q.8	a.	With sketches briefly explain the working principles of i) Seam welding ii) Spot welding iii) Explosive welding iv) Thermit welding.	20	L2	CO4
Module – 5					
Q.9	a.	With a neat sketch, explain single point cutting tool nomenclature.	10	L2	CO5
	b.	With a sketch, explain the parts of lathe.	10	L2	CO5
OR					
Q.10	a.	Define milling? Briefly explain the classification of milling machines.	10	L1	CO5
	b.	Differentiate in between Drilling, boring and reaming processes.	10	L2	CO5

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