Reg. No.												

Question Paper Code	12937

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Seventh Semester

Mechanical Engineering

20MEEL712 - COMPOSITE MATERIALS AND MECHANICS

Regulations - 2020

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	*K – Level*	*CO*
1.	What is a composite material?	*2*	*K1*	*CO1*
2.	Name two types of fibers used as reinforcements in composite materials.	*2*	*K1*	*CO1*
3.	List the potential application of polymer matrix composites.	*2*	*K1*	*CO2*
4.	What is resin transfer molding?	*2*	*K1*	*CO2*
5.	State the advantages of using titanium as a metallic matrix in MMCs.	*2*	*K1*	*CO3*
6.	Define metallic matrices in metal matrix composites.	*2*	*K1*	*CO3*
7.	State one chemical route for the synthesis of ceramic matrix composites.	*2*	*K1*	*CO4*
8.	List the applications of ceramic matrix nanocomposites.	*2*	*K1*	*CO4*
9.	Define Quasi-Isotropic Laminates.	*2*	*K1*	*CO5*
10.	State the basic assumption of laminated anisotropic plates.	*2*	*K1*	*CO5*

PART - B (5 ×16 = 80 Marks)

Answer **Any FIVE** Questions

		16	*K2*	*CO1*
1.	Explain in detail the general characteristics of composite materials and state some of their applications.			
2.	Explain the physical and chemical properties of various plant fibers.	*16*	*K2*	*CO1*
3.	Explain the hand layup composite fabrication process with appropriate sketches.	*16*	*K2*	*CO2*
4.	Explain the injection molding process with suitable industrial applications.	*16*	*K2*	*CO2*
5.	Compare the process of liquid state and Solid state in MMC's.	*16*	*K2*	*CO3*
6.	Discuss about metal matrix nano composites with suitable applications.	*16*	*K2*	*CO3*
7.	Explain the carbon fiber reinforcement's matrix systems with neat sketches.	*16*	*K2*	*CO4*
8.	Explain the following with examples. (a) Generalized Hooke's Law (b) Laminated anisotropic plates	*16*	*K2*	*CO5*