PRN:		Course Code :	UME 351

Second Year **B. Tech** Semester End Examination Winter 2024 000160

Metallurgy

Day and Date: Mon F= 2 DEC 2024 Max Marks: **100**

Time : 10:30AM To 01:30PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Explain briefly different types of thermoplastics with their applications	08	1	1
	b)	Classify Brasses and differentiate clearly between alpha-beta brasses.	08	1	1
		OR			
	b)	Classify steels. Write down composition, properties and applications of plain "C" steels.	08	1	1
Q.2		**Attempt the following**			
	a)	Explain BCC and FCC crystal structures with diagram and examples	08	3	2
	b)	Write short note on Ferrous and Non-Ferrous Metals.	08	3	2
		OR			
	b)	Define solid solution. Differentiate substitutional and interstitial solid solution	08	3	2
Q.3		**Attempt any two from the following**			
	a)	Draw neatly Iron-Iron Carbide equilibrium diagram and show on it carbon percentage ,different phases ,critical temperatures.	08	3	3
	b)	Describe the following terms in details i)Eutectoid Steels and ii)Hypoeutectoid steels	08	3	3
	c)	Draw microstructure of following composites i)0.2% carbon steel and ii)0.8 % Carbon Steels.	08	3	3
Q.4		**Attempt any two from the following**			
	a)	Write Note on i) Nucleation and grain growth ii) Lever arm Principle	08	2	4
	b)	Explain in details Composites , properties and applications of Tool steels	08	2	4
	c)	Explain Malleable cast irons in details.	08	2	4
Q.5		**Attempt any Two of the following**			
	a)	Define heat treatment and heat treatment defects.	09	1	5
	b)	Define Annealing heat treatment process	09	1	5
	c)	Describe hardening heat treatment processes	09	1	5
Q.6		**Attempt any Two of the following**			
	a)	Write short note on Self lubricating Bearings	09	2	5
	b)	Write short note on Powder metallurgy	09	2	5
	c)	Write short notes on different Powder manufacturing methods.	09	2	5

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