QP Code : 5473

(3 Hours) [Total Marks : 100

N. B. 1) Question No. 1 is compulsory.
2) Attempt any three questions from remaining five questions.
3) Figures in bracket indicate marks.
4) Draw neat well labeled sketches.

Q. 1		Write note on any four:-	(5x4=20)
	a)	Baushinger's effect related to fatigue of metal	
	b)	Creep Test	
	c)	Effect of Alloy on TTT diagram	
	d)	Critical resolved shear stress	
	e)	Crystal Imperfection	
Q. 2	A)	What do you mean by Composite materials? Explain their properties and practical applications.	(10)
	B)	What is Fatigue? Explain fatigue testing in detail.	(10)
Q. 3	A)	Draw Fe-Fe$_3$C Diagram and Explain cooling of 1.0 % C alloy in the Fe-Fe$_3$C Diagram.	(10)
	B)	Explain Flame Hardening and Induction Hardening.	(10)
Q. 4	A)	Draw and explain Time Temperature Transformation (TTT) diagrams of 0.8 % C alloy.	(10)
	B)	Derive an expression for Griffith theory of brittle fracture.	(10)
Q. 5	A)	What is plastic deformation? Distinguish between slip and twin mechanism of plastic deformation.	(10)
	B)	What is case hardening? Explain carburising in detail	(10)
Q. 6		Write short note on any four	
	a)	Dislocation Jog and Kink.	
	b)	Austempering	
	c)	Bain's distortion model for martensitic transformation	
	d)	Engineering Materials	
	e)	Annealing	

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