Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

Su	ıbiec	BE - SEMESTER-VIII (old) - EXAMINATION – SUMMER 2017 et Code:182102 Date:29/04/20	17
	U	et Name: Selection of Materials and Failure Analysis	
Ti	-	10:30 AM to 01:00 PM Total Marks:	70
	1	 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 	
Q.1	(a) (b)	Explain the role of material engineer for selection of materials in Design synthesis. Short note on factor affecting on cost of basic materials.	07 07
Q.2	(a) (b)	List the criteria for selection of engineering materials and explain each. Define Stiffness and explain material selection criteria for Stiffness. OR	07 07
	(b)	Describe various materials used for high strength and ultrahigh strength.	07
Q.3	(a) (b)	Define creep. Draw creep curve and explain each stage List the properties required for bearings. Discuss the bearing materials. OR	07 07
Q.3	(a) (b)	Discuss briefly on Material selection for wear resistance. Explain relationship between material selection and material processing.	07 07
Q.4	(a) (b)	What is general practice in Failure analysis? What are the types of failures & its characteristics? OR	07 07
Q.4	(a) (b)	Explain macro and micro features of ductile fracture. Define hydrogen embrittlement of steel. Explain the mechanism of hydrogen induced cracking in the steels.	07 07
Q.5	(a) (b)	Explain in detail the mechanism of stress corrosion cracking failure. Discuss briefly about in service failure. OR	07 07
Q.5	(a) (b)	Short note on brittle failure. Discuss briefly about in process failure.	07 07
