Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

~		BE - SEMESTER-VIII (NEW) - EXAMINATION – SUMMER 2017	4=
	•	ct Code: 2182102 Date: 29/04/20	17
	•	ct Name: Material selection and Failure Analysis	7 0
	ıme: struct	10:30 AM to 01:00 PM Total Marks:	70
111		1. Attempt all questions.	
		2. Make suitable assumptions wherever necessary.	
		3. Figures to the right indicate full marks.	
Q.1	(a)	Explain the role of material engineer for selection of materials in Design synthesis.	07
	(b)	Short note on factor affecting on cost of basic materials	07
Q.2	(a)	Explain various criteria for the selection of materials by giving suitable application.	07
	(b)	Which are different mechanical properties used for selection of material in engineering use. Explain Strength in detail.	07
		OR	
	(b)	Explain Creep mechanism. On which factors Creep resistance of material depends? Describe various materials used for Creep resistance.	07
Q.3	(a)	What procedure is follow for failure investigator?	07
	(b)	Discuss about bearing materials.	07
0.2	()	OR	0=
Q.3	(a) (b)	Explain macro and micro features of Ductile failure. Write basic characteristics of brittle failure and explain in brief.	07 07
Q.4	(a)	Discuss case study on high temperature metallurgical changes leading to failure of metals.	07
	(b)	Explain in brief about Materials used for ship structure and automobile structure. OR	07
Q.4	(a)	How H ₂ embrittlement occur in steel? Explain mechanism of H ₂ induced cracking in the steel.	07
	(b)	Explain three stages of fatigue failure. Differentiate between strations and beach marks.	07
Q.5	(a)	Discuss briefly about in service failure by giving suitable example.	07
	(b)	Explain the mechanism of stress corrosion cracking in alloys. OR	07
Q.5	(a) (b)	Discuss case study based on in process failure. Discuss case study in which failure occur due to Inter granular Corrosion.	07 07
