

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III(New) EXAMINATION – SUMMER 2016

Subject Code:2132104**Date:04/06/2016****Subject Name:Testing of Metals and Alloys****Time:10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	Short Questions	14
	1 Define Toughness.	
	2 Define Ductility.	
	3 Yield strength is _____	
	4 Define Resilience.	
	5 Define Impact strength.	
	6 Define Hardness.	
	7 Define creep.	
	8 Define young's Modulus.	
	9 Define Strain	
	10 Fatigue limit _____	
	11 Write formula of % Elongation.	
	12 Write formula of % Reduction in area.	
	13 Define the Fatigue life.	
	14 Define the Fatigue Strength.	
Q.2	(a) Explain Rockwell Hardness Test method	03
	(b) List Rockwell Hardness Test advantages & limitations.	04
	(c) What is calibration of instruments? Discuss the importance of calibration of testing instruments.	07
	OR	
	(c) 'Testing of material is an important task for industry' - justify comment	07
Q.3	(a) Classify material testing methods.	03
	(b) Describe the criteria for selection of testing method.	04
	(c) Write a note on effect of temperature and strain rate on flow properties.	07
	OR	
Q.3	(a) Explain about yield point phenomena.	03
	(b) What do you understand by rebound Hardness test? Mention limitations.	04
	(c) What is meant by fatigue failure? Write a note on fatigue Mechanisms in metals	07
Q.4	(a) Draw a typical creep curve and label it.	03
	(b) Which tests is used to measure toughness?	04
	(c) Explain mechanism of fatigue in metals. What are main factors affecting fatigue properties of materials.	07
	OR	

- Q.4** (a) Enlist different Rockwell scales with indenter used. **03**
(b) Discuss true stress-strain curve. **04**
(c) Describe Charpy Impact test. Derive Relationship for energy absorbed by specimen **07**
- Q.5** (a) Explain Izod impact test. **03**
(b) Discuss Factors affecting creep behavior **04**
(c) Short notes on Only write formula for Brinell, Vickers, Meyers & knoop with symbol description **07**
- OR**
- Q.5** (a) Mention Factors affecting Impact Test. **03**
(b) Write a note on Mechanism of creep deformation in metals. **04**
(c) Write a note on Micro Hardness Test. Give the applications. **07**
