

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2019****Subject Code: 2132104****Date: 11/06/2019****Subject Name: Testing of Metals and Alloys****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

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

		MARKS
<b>Q.1</b>	(a) Define: Ductility, Toughness and Resilience.	<b>03</b>
	(b) Describe about yield point phenomena.	<b>04</b>
	(c) Explain Rockwell Hardness Test method. Mention advantages & limitations.	<b>07</b>
<b>Q.2</b>	(a) Define and differentiate Fatigue life and Fatigue limit.	<b>03</b>
	(b) Discuss effect of temperature and strain rate on flow properties.	<b>04</b>
	(c) Draw and discuss engineering and true stress-strain curve.	<b>07</b>
	<b>OR</b>	
	(c) Explain the procedure of tensile testing.	<b>07</b>
<b>Q.3</b>	(a) Discuss important features of fatigue failure.	<b>03</b>
	(b) 'Testing of material is an important task for industry' - justify comment.	<b>04</b>
	(c) What do you mean by Impact Test.? Explain Izod impact test.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) State the objective of 'testing of material'.	<b>03</b>
	(b) Discuss the importance of calibration of testing instruments.	<b>04</b>
	(c) Describe Charpy Impact test. Derive Relationship for energy absorbed by specimen.	<b>07</b>
<b>Q.4</b>	(a) Enlist advantages & limitations of Vicker Hardness Test method.	<b>03</b>
	(b) Explain rebound Hardness test.	<b>04</b>
	(c) Describe Mechanisms of fatigue failure in metals.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Describe the Bauschinger effect.	<b>03</b>
	(b) Describe the variables affecting Fatigue strength.	<b>04</b>
	(c) Discuss Brinell Hardness Test Procedure in detail. Mention Limitations.	<b>07</b>
<b>Q.5</b>	(a) Differentiate between ductile and brittle fracture.	<b>03</b>
	(b) Give Mechanism of cup and cone type fracture.	<b>04</b>
	(c) Define creep and describe Mechanism of creep deformation in metals.	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Define and explain Creep-Rupture strength.	<b>03</b>
	(b) Explain Scratch Hardness test.	<b>04</b>
	(c) Describe the creep testing method.	<b>07</b>

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