

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2152204****Date:01/05/2017****Subject Name: Rock Mechanics****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.

		<b>MARKS</b>
<b>Q.1</b>	<b>Short Questions</b>	<b>14</b>
	1 What is stress?	
	2 What is elasticity?	
	3 Define specific gravity.	
	4 What is soil swelling?	
	5 Define thermal conductivity.	
	6 What is soil compressibility?	
	7 What is overcoring?	
	8 Give equation of porosity.	
	9 How is unit of pressure?	
	10 Give SI unit of density.	
	11 What is plunge?	
	12 Define young's modulus.	
	13 What is hydraulic gradient?	
	14 What is fracture?	
<b>Q.2</b>	(a) What is application of rock mechanics in mining?	<b>03</b>
	(b) Differentiate between isotropic and anisotropic rock.	<b>04</b>
	(c) Describe dynamic and static loading.	<b>07</b>
	<b>OR</b>	
	(c) How stress and strain works on rocks?	<b>07</b>
<b>Q.3</b>	(a) List the physical properties of rocks.	<b>03</b>
	(b) How abrasivity is determined in rock?	<b>04</b>
	(c) Describe slake durability	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Define swell index.	<b>03</b>
	(b) Explain creep test.	<b>04</b>
	(c) What are the dynamic properties of rock? Explain them.	<b>07</b>
<b>Q.4</b>	(a) What is creep deformation?	<b>03</b>
	(b) How is rock strength determined?	<b>04</b>
	(c) Explain in-situ elastic properties of rock	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) What is rock failure?	<b>03</b>
	(b) What are the mechanics of rock failure?	<b>04</b>
	(c) Explain Moh's and Griffith criteria of rock failure.	<b>07</b>
<b>Q.5</b>	(a) What is pre-mining stress?	<b>03</b>
	(b) What are the physical properties of rock?	<b>04</b>
	(c) Give classification of engineering soil.	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) What is soil compressibility?	<b>03</b>
	(b) Explain permeability and its type.	<b>04</b>
	(c) Describe the influence of water on rock and soil.	<b>07</b>