

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

Subject Code:2130606

Date:31/05/2016

Subject Name:Geotechnics & Applied Geology

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 The soil transported by wind is called _____.	
	2 Define the term: water content.	
	3 If the porosity of a soil sample is 20%, the void ratio is _____.	
	4 What is the value of plasticity index for a sandy soil?	
	5 State the particle size range of silt.	
	6 In IS soil classification system, what is the symbol for sandy silt?	
	7 Usually the shape of clay particle is _____.	
	8 Which clay mineral has the maximum swelling property?	
	9 For which type of soil, constant head permeability test is performed?	
	10 State Darcy's law.	
	11 On a Mohr's scale, which mineral has the maximum hardness?	
	12 Define the magnitude of an earth quake.	
	13 Define the term: aquifer.	
	14 What are the side effects of an earth quake?	
Q.2	(a) Give the general over view of soil types in Gujarat.	03
	(b) Describe the terms with their probable range : co-efficient of uniformity and co-efficient of curvature	04
	(c) Describe the step by step procedure to perform permeability test on a fine grained soil in the laboratory.	07
	OR	
	(c) Describe step by step procedure to perform liquid limit test in the laboratory.	07
Q.3	(a) Distinguish between density and relative density.	03
	(b) If the bulk unit weight of a wet soil mass is 19.80 kN/m^3 , find dry density, void ratio and degree of saturation of soil mass. consider water content is 12%.	04
	(c) Explain the characteristics of flow net with its applications.	07
	OR	
Q.3	(a) Derive the functional relationship $e_s = m \cdot G$	03
	(b) Write a short note on the capillary water.	04
	(c) Write a short note on the types of soil structure.	07
Q.4	(a) What is the importance of geology for civil engineering?	03
	(b) According to the mode of origin, give the classification of rocks.	04
	(c) Explain the terms: dip and strike with neat sketches. Give the classification of faults	07
	OR	
Q.4	(a) Define weathering and explain the process of physical weathering.	03
	(b) Describe in brief types of earth quake waves.	04
	(c) Write a short note on the types of land slides.	07

- Q.5** (a) What do you understand by the term liquifaction? **03**
(b) Explain how sedimentary rocks are formed. **04**
(c) Write a short note on the internal structure of the earth. **07**

OR

- Q.5** (a) Define terms: evaporation and transpiration. **03**
(b) Write the classification of folds. **04**
(c) Write a short note on application of remote sensing in engineering geology. **07**
