P P SAVANI UNIVERSITY

IV Semester of B. Tech. Examination

May 2019

SECV2060 Geology & Geotechnical Engineering

17.05.2019, Tuesday **Time: 09:00 a.m. To 11:30 a.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

Q - 1	Attempt the following. (Any Five)	**[05]**
(i)	Define the term Engineering Geology.	
(ii)	Quartz have _____ colour streak.	
(iii)	Define the term Igneous rock.	
(iv)	Define Anticline fold.	
(v)	Fractures found in rocks called_____.	
(vi)	Define the tera weathering of rocks.	
(vii)	Rocks which are formed by the accumulation, compaction and consolidation of sediments called _____.	
Q - 2 (a)	Explain physical properties of minerals.	**[05]**
Q - 2 (b)	Write down a classification on Igneous rock.	**[05]**
	OR	
Q - 2 (a)	Describe different types of faults.	**[05]**
Q - 2 (b)	What are the geological considerations of Tunnel sight?	**[05]**
Q - 3 (a)	Explain different forms of igneous rocks.	**[05]**
Q - 3 (b)	Explain the terms: dip and strike with neat sketches. Give the classification of fault.	**[05]**
	OR	
Q - 3 (a)	Explain geological consideration for the construction of dam.	**[05]**
Q - 3 (b)	Define Weathering and discuss the any one type of weathering process.	**[05]**
Q - 4	Attempt any One.	**[05]**
(i)	Explain structure of Sedimentary Rocks.	
(ii)	Explain structure of soil in detail.	

SECTION – II

Q - 1	Attempt the following. (Any Five)	**[05]**
(i)	State the particle size range of silt as per IS classification.	
(ii)	For which type of soil, constant head permeability test is performed?	
(iii)	Write the equation to find coefficient of uniformity and coefficient of curvature.	
(iv)	Define the term: Degree of saturation with equation and unit.	
(v)	Define the term: Bulk Density.	
(vi)	If the void ratio of a soil sample is 30%, the porosity is _____.	
(vii)	Write full form of CH, MI, SC, GP, OH, Pt.	
Q - 2 (a)	Describe briefly the textural classification of soil.	**[05]**
Q - 2 (b)	Describe step by step procedure to perform liquid limit test in the laboratory.	**[05]**
	OR	
Q - 2 (a)	Explain constant head permeability test.	**[05]**

Q - 2 (b)	A soil sample of height 60 mm and cross-sectional area of 100 cm^2 was subjected to falling head permeability test. In a time, interval of 6 minutes, the head dropped from 60 cm to 35 cm. If the cross-sectional area of the stand pipe is 2 cm^2, compute the coefficient of permeability of the soil sample. If the same sample is subjected to a constant head of 20 cm, calculate the total quantity of water that will be collected after flowing through the sample.	**[05]**
Q - 3 (a)	Define the Following term: Capillary water, Adsorbed water, Structural water and Pore water.	**[05]**
Q - 3 (b)	Explain the term activity, sensitivity & thixotropy of soil	**[05]**
	OR	
Q - 3 (a)	Write a short note on types of samplers.	**[05]**
Q - 3 (b)	Explain with neat sketch wash boring method of soil exploration.	**[05]**
Q - 4	Attempt any One.	**[05]**
(i)	Explain particle size distribution curve with figure.	
(ii)	State Darcy's law and what are the validities of Darcy's law?	

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