Q. Code: 628597

Reg. No. | | | | | | | | | | | | | |

B.E./ B. TECH.DEGREE EXAMINATIONS, MAY 2024

Eighth-Semester

CE18010 – SUBSURFACE INVESTIGATION AND INSTRUMENTATION

(Civil Engineering)

(Regulation 2018 / 2018A)

TIME:3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Plan the suitable exploration techniques based on the site conditions.	**3**
CO 2	Describe the desirable exploration techniques and can able to draft the borelog.	**3**
CO 3	Aware of different sampling techniques and how to arrive engineering characters through laboratory testing.	**3**
CO 4	Aware on different field testing for soil exploration and can able to select the suitable test base on the site conditions.	**3**
CO 5	Adopt basic knowledge on different instrumentation in soil engineering	**3**

PART- A (10x2=20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	What is the need of site investigation?	**1**	**2**
2.	How to decide the number of bore holes required before the construction?	**1**	**2**
3.	What is role of bentonite in borehole drilling?	**2**	**2**
4.	List the different methods of boring.	**2**	**2**
5.	What are the soil characteristics can be retrieved from disturbed soil sample?	**3**	**2**
6.	How to access the quality of the soil sample taken from sampler?	**3**	**2**
7.	Differentiate “Laboratory Vane Test” and “Field Vane Test”.	**4**	**2**
8.	What is meant by permeability of soil?	**4**	**2**
9.	List the different application of “Strain gauges”.	**5**	**2**
10.	What is meant by “Pore water pressure”?	**5**	**2**

PART- B (5x 14 = 70Marks)

		Marks	CO	RBT LEVEL
11. (a)	Elaborate the different factors to be considered for site investigation. Discuss the different stages of site investigation in detail.	**(14)**	**1**	**2**

(OR)

(b)	Explain in detail about "Cross hole method" of bore hole investigation with neat sketch.	**(14)**	**1**	**2**
12. (a)	Explain the different methods of boring operation in detail with neat sketch. Highlight the merits and demerits of each method.	**(14)**	**2**	**2**
	(OR)			
(b)	Explain the different factors to be considered while preparing the bore hole log report.	**(14)**	**2**	**2**
13. (a)	Explain in detail about "Piston sampler" with neat sketch. How to discover the quality of the soil sample collected from the sampler?	**(14)**	**3**	**2**
	(OR)			
(b)	Discuss the various factors to be considered for preservation and handling of soil samples from the construction site.	**(14)**	**3**	**2**
14. (a)	Explain "Field Vane Shear Test" in detail with neat sketch. How to interpret the results to arrive the shear strength parameters?	**(14)**	**4**	**2**
	(OR)			
(b)	Discuss the field permeability test in detail with neat sketch. What is the impact of irregular soil profile on soil permeability?	**(14)**	**4**	**2**
15. (a)	Explain the working principle and application of "Load cell" in detail with neat sketch.	**(14)**	**5**	**2**
	(OR)			
(b)	Explain the working principle and application of "Resistance type strain gauge" in detail with neat sketch.	**(14)**	**5**	**2**

PART- C (1x 10=10Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Explain in detail about "Monotonic and Cyclic Plate Load Test" in detail with net sketch.	**(10)**	**4**	**2**

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