Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec – 2017**

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|  |  |  |  |
| **Code :** | **17CE3036** | **Duration :** | **3hrs** |
| **Sub. Name :** | **EXPERIMENTAL GEOMECHANICS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Define site investigation and enumerate the purposes for which site investigations are carried out. | CO2 | 5 |
| b. | Recall the steps involved in planning a subsurface exploration programme. | CO2 | 15 |
| (OR) | | | | |
| 2. | a. | Identify the objectives of exploration. | CO1 | 4 |
|  | b. | Analyze the factors to be considered for deciding the space and depth of exploration. Explain with an example. | CO1 | 16 |
|  |  |  |  |  |
| 3. | a. | Briefly describe the stages in subsurface exploration. | CO1 | 5 |
|  | b. | Explain any two methods of boring in soil exploration with a neat sketch. | CO2 | 15 |
| (OR) | | | | |
| 4. | a. | List the various methods of site exploration. | CO1 | 2 |
|  | b. | Explain in detail the following methods of exploration.  i. Drifts and Shafts. ii. Auger Boring. | CO1 | 18 |
|  |  |  |  |  |
| 5. | a. | Point out the various design features affecting the sample disturbance. How are these effects minimized? | CO3 | 17 |
|  | b. | List the requirements of soil samplers for obtaining undisturbed samples. | CO3 | 3 |
| (OR) | | | | |
| 6. | a. | Determine the inside clearance of the sampler tube having the inner dimension of the sample tube and driving shoe as 100mm and 98mm. | CO3 | 3 |
|  | b. | With a neat sketch, describe split spoon samplers and piston sampler. | CO3 | 17 |
|  |  |  |  |  |
| 7. |  | The following data was obtained from a plate load test carried out on a 60cm square test plate at a depth of 2m below the ground surface on a sandy soil which extends up to a large depth. Determine the settlement of a foundation 3.0m x 3.0m carrying a load of 110kN and located at a depth of 3m below the ground surface.  Load test data.   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Load intensity kN/m2 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | | Settlement,mm | 2.0 | 4.0 | 7.5 | 11.0 | 16.3 | 23.5 | 34.0 | 45.0 | | CO4 | 20 |
| (OR) | | | | |
| 8. | a. | Summarize the salient features of a good sub-soil investigation report. | CO6 | 5 |
| b. | Explain the standard penetration test in detail with its corrections. | CO4 | 15 |
|  | | **Compulsory**: |  |  |
| 9. | a. | List the advantages of geophysical methods. | CO5 | 4 |
|  | b. | Describe in brief the following geophysical methods and their limitations and uses.  i. Electrical resistivity method. ii. Seismic refraction method. | CO5 | 16 |

ALL THE BEST