C16-**C-504**

6623

BOARD DIPLOMA EXAMINATIONS

SEPTEMBER/OCTOBER-2020

DCE – FIFTH SEMESTER

GEO TECHNICAL ENGINEERING

Time: 3 hours | Max. Marks: 80

PART – A **3 X 10 = 30**

Instructions: *1. Answer **all** questions.*
*2. Each question carries **Three** Marks.*
3. Answer should be brief and straight to the point and should not exceed Five simple sentences.

1. Define Residual soils and Transported soils.
2. Define the terms (a) Disturbed sample (b) Un Disturbed Sample.
3. Define the terms (a) Void ratio (b) Porosity.
4. Define permeability and compressibility of soils.
5. Define the terms (a) Ultimate Bearing Capacity (b) Safe Bearing Capacity of soils.
6. What is the importance of factor of safety in soils.
7. List the causes of foundation settlement.
8. Distinguish between compaction and consolidation.
9. Define significant depth of soils.
10. Distinguish between Standard Proctor Test and Modified Proctor Test.

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PART – B 5 X 10 = 50

***Instructions**:* *1. Answer any **Five** questions*
*2. Each question carries **TEN** Marks.*
3. Answer should be comprehensive and Criteria for Valuation is the content but not the length of the answer.

11. Describe Hydrometer analysis of fine grained soils with a neat sketch.

12. One cubic meter of wet soil weights 20kN. Its dry weight is 18kN . Specific gravity of solids is 2.67. Determine the water content, void ratio, porosity and degree of saturation.

13. Explain the laboratory procedure for determination of water content by oven drying method.

14. Explain Indian Standard Soil Classification System.

15. (a) Explain any one geophysical method of soil exploration.

    (b) Write in brief about the field implication of consolidation of soils.

16. Explain field plate load test with a neat sketch.

17. (a) What is meant by compressibility of soil.

    (b) Explain briefly the vertical pressure distribution in soil between loaded areas.

18. Explain the method of field measurement of compaction by using core cutter method.

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BOARD DIPLOMA EXAMINATION, (C–16)

NOVEMBER—2020

DCE—FIFTH SEMESTER EXAMINATION

GEO-TECHNICAL ENGINEERING

Time : 3 hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions **:** (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Write the importance of soil mechanics in any three areas of Civil Engineering.

2. State any three needs for soil exploration.

3. Define the terms *(a)* void radio and *(b)* porosity.

4. List the factors which affect the permeability of soils.

5. Define bearing capacity of soils. Write any two factors affecting bearing capacity of soils.

6. Write IS code equation for computing bearing capacity of soils.

7. Write a short note on settlement in soils.

8. Write the expression for determination of Terzaghi's effective stress/pressure in consolidation of soils.

9. List any three objectives of compaction.

10. Write a short note on California Bearing Ratio.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. List the various types of soil and briefly explain any four of them.

12. Explain the test procedure for determination of liquid limit of soils in the laboratory by Casagrande's method.

13. A soil sample has specific gravity of 2·68 and void ratio of 0·65. Determine the *(a)* dry unit weight, *(b)* bulk unit weight, when the soil is 40% saturated and *(c)* bulk unit weight when the soil is completely saturated. Unit weight of water is 9·81 kN/m^3.

14. Explain briefly IS classification of soils.

15. *(a)* Explain seismic refraction method of subsoil exploration with the help of a neat sketch.

(b) Explain the procedure for determining the shear strength of soil by direct shear test.

16. Explain the importance of factor of safety and safe bearing capacity values in the design of foundations.

17. *(a)* Briefly explain the vertical pressure in soils beneath the loaded areas.

(b) Explain the process of consolidation in soils and write its importance.

18. Explain the method of field measurement of compaction by core-cutter method.

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