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Roll No.

Total Pages : 3

002503

Jan. 2022

**B.Tech. (Civil) - V SEMESTER
Geotechnical Engineering (PCC-CE304)**

Time : 90 Minutes]

[Max. Marks : 25

Instructions:

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1. (a) Define plasticity of soil. (1)
- (b) Define Activity of soil. (1)
- (c) Define density index stating its expression. (1)
- (d) Give the meaning of gap graded soil. (1)
- (e) State *two* field situations where soil compaction is necessary. (1)
- (f) Define liquid limit and plastic limit of soil. (1)
- (g) State the necessity of soil investigation. (1)

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- (h) Write the Darcy's law of permeability with its expression. (1)
- (i) List the factors affecting the permeability of soil. (1)
- (j) State the difference between well graded and poorly graded soil. (1)

PART-B

- 2. (a) Discuss various methods of site exploration. (3)
- (b) Explain the soil as three phase system. (2)

- 3. (a) State the assumptions made in Terzaghi's bearing capacity theory of soils. (2)
- (b) Explain the effect of water table on bearing capacity of soil. (3)

- 4. Draw shear strength envelope stating the shear strength equations for (i) Purely cohesive soil (ii) Cohesionless soil. (5)

- 5. (a) Differentiate between compaction and consolidation with four points. (3)
- (b) Differentiate between active earth pressure and passive earth pressure. (2)

- 6. (a) Explain the Mohr-Coulomb's theory to determine the shear strength of soil. (2)
 - (b) Explain the sieve analysis test for grading of soil with the help of particle size distribution curve. (3)
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