

(b) Write short notes on the following :

- (i) Factors affecting bearing capacity
- (ii) Pile spacing and group action of pile
- (iii) Methods of designing raft foundation 6,9

Section-D

8. What is Caisson ? Explain in detail the different types of caissons with neat sketches. 15

9. (a) Describe the different methods to rectify the tilts and shifts of well foundation. Also state the recommended values of tilts and shifts as per I.S. 3955.

(b) Describe the following :

- (i) Drilled pier and its types
- (ii) Different components of well foundation in detail 7,8

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RD-3529

Roll No. :

Total No. of Questions : 9]

[Total No. of Pages : 4

3304

B.Tech. (Civil) 6th Semester (Supplementary)

Examination, July-2021

(G Scheme)

FOUNDATION ENGINEERING

Paper-PCC-CE-304-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note :- Attempt five questions in all, selecting one question from each Section. Question No. 1 is compulsory. Assume missing data, if any, suitably.

1. Describe the following :

- (a) Objectives and stages of soil exploration
- (b) Types of shallow foundations
- (c) Allowable settlement according to IS code method

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RD-3529

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- (d) Floating foundation and its suitability
- (e) Battie pile and its uses
- (f) Grip length

Section-A

- 2. (a) What is Soil Sampling and Disturbance ? Describe in detail the different types of soil sampler with their suitability.
- (b) Describe in detail the different methods of boring for sub-surface explorations. 7,8
- 3. (a) What are the different methods of dewatering ? Explain different stages of well point system with neat sketches.
- (b) Describe Pressure-meter Test and Exploration log in detail. 7,8

Section-B

- 4. (a) A rectangular footing $1\text{ m} \times 2\text{ m}$ is placed at a depth of 2 m in saturated clay having unit weight of 19 kN/m^3 and unconfined compressive strength of 100 kN/m^2 . Determine the net ultimate bearing capacity using (i) Terzaghi's theory; (ii) Skempton's theory.

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RD-3529

- (b) Describe in detail the different modes of shear failure with neat diagram. 8,7
- 5. (a) What are the different causes of settlement of Foundation ? Describe different methods to determine settlement of foundation in cohesive and cohesionless soil.
- (b) Describe in detail the conventional procedure of proportioning of footing. 8,7

Section-C

- 6. (a) What is the necessity of Pile Foundation ? Classify the pile on different bases and explain them in detail.
- (b) Explain the detailed procedure to conduct pile load test with neat diagram. 8,7
- 7. (a) A timber pile was driven by a drop hammer weighing 30 kN with a free fall of 1.2 m. The average penetration was 5 mm. What is the capacity of pile according to Engineering News Formula ?

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RD-3529

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