



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

InSem Examination-II Summer 2025	
Exam Seat No.:	
Academic Year: 2024-2025	Semester: VI
Class: TY	Program: B.Tech
Branch Code: CIV	Pattern: 22
Name of Course: Foundation Engineering	Course Code: CIV223012
Max. Marks: 30	Duration: 1.15 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains ONE page.
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last column indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

Marks CO

Question No. 1

- 1 a) Explain in detail purpose and planning of subsurface exploration of soil for foundations. (7) CO1

Question No. 2

- 2 a) The inner diameter of sampling tube and that of cutting edge are 64 mm and 62 mm respectively. Their outer diameters are 68 mm and 70 mm respectively. Determine (i) inside clearance (ii) outside clearance (iii) area ratio of the sampler. Comment on type of sample. (4) CO1
- 2 b) What is RQD, How rating of rock quality is decided on RQD. (4) CO1

Group OR

- 2 c) What is significant depth? How would you decide the depth of exploration? (4) CO1
- 2 d) Enlist various types of soil samplers and explain any one in detail. (4) CO1

Question No. 3

- 3 a) Differentiate between general shear failure and local shear failure. (7) CO2

Question No. 4

- 4 a) Explain the concept of floating foundation applied to a raft. (4) CO2
- 4 b) The standard penetration test is conducted in fine saturated sand below ground water table. Find the corrected standard penetration number due to dilatancy, if recorded standard penetration number is 40. (4) CO2

Group OR

- 4 c) Calculate the ultimate bearing capacity of a square footing 3 m X 3 m wide and 1 m deep when unit weight of soil 18 kN/m³, cohesion is 20 kN/m², $\phi=20^\circ$, $N_c=17.5$, $N_q=7.5$, $N_\gamma=5$. (4) CO2
- 4 d) Explain the procedure of 'Standard Penetration Test' with a neat sketch. (4) CO2

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