Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

B.Tech. summer 2021 – 22 Examination,

Semester: 8 **Date: 30/03/2022**

Subject Code: 03104452 **Time: 10:30 am to 01:00 pm**

Subject Name: Foundation Engineering **Total Marks: 60**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions : **(15)**

1. A _____ type of sample has preserved natural structure of soil.
   A) Undisturbed B) Disturbed
   C) Non representative D) remolded
2. The type of boring used for making deep excavation is ____
   A) Percussion Boring B) Cylindrical Augers
   C) Rotary Boring D) Wash Boring
3. The commonly used equipment for penetration test is _____
   A) IS B) Dutch
   C) Cone D) All
4. The pressure intensity beneath the footing depends on _____
   A) Rigidity of Footing B) Soil Type
   C) Condition of soil D) All of mentioned
5. Which of the following are original Terzaghi values for Nγ
   A) 34° and 48° B) 60°
   C) None D) All of mentioned
6. Local shear failure generally occurs in_____
7. According to Indian standard method, the loading of the plate should be borne with either by _____
8. A combined footing may be rectangular in shape if both the columns carry _____
9. How many types of foundations are there based on depth?
10. Machine foundation is subjected to:

Write the Definition of:

11. Soft Clay
12. Allowable Settlement
13. Proctor Test
14. Split Spoon Sampler
15. Effective Stress

Q.2 Answer the following questions. (Attempt any three) **(15)**

A) Enlist different types of Auger Boring.
B) Draw the figure of Split Spoon Sampler.
C) Explain Shallow Foundation.
D) Write short note on Foundation type of Statue of Unity.

Q.3 A) Explain with neat sketch: Standard Penetration test. **(07)**

B) Enlist different types of Pile Foundation and draw the figure of End Bearing Piles and explain it. **(08)**

OR

B) What do you understand by Settlement of Shallow Foundation? Explain in Brief. **(08)**

Q.4 A) Find out safe bearing capacity for square footing for given data. **(07)**

D = 1.5m B = 2.5,γ = 20kN/m3, c = 0, Nc'= 9.5, Nq'= 3.5, Nγ' = 1.7, FOS = 3.

OR

A) Find out safe bearing capacity for strip footing for given data. **(07)**

D = 0.8m B = 1m,γ = 18kN/m3, c = 30kN/m2, Nq= 47, Nγ = 64, FOS = 3.

B) A Plate load test on cohesionless soil with pressure of 2 kg/m2 and bearing plate of 30cm which settles by 1.5cm. Find settlement of footing 1m square under same pressure. **(08)**