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 **Reg. No. :**

**Question Paper Code: 45012**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Fifth Semester

Civil Engineering

14UCE502- FOUNDATION ENGINEERING

 (Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The number and disposition of bore holes are varied, depending upon

(a) Surroundings (b) Strata (c) Subsoil condition (d) Ground water

2. The type of boring, used for making deep excavations is

 (a) Cylindrical augers (b) Percussion boring

 (c) Rotary boring (d) Wash boring

3. Which of the following is a type of shallow footing?

 (a) Spread footing (b) Pile foundation

 (c) Pier foundation (d) Well foundation

4. The Terzaghi’s general bearing capacity equation is represented as

(a) qf = 5.7 c + σ̅ (b) qf = c Nc + σ̅. Nq + 0.5γBNγ (c) qf = c Nc + σ̅. Nq (d) qf = c Nc

5. When two column loads are unequal, which of the possible footing can be provided?

 (a) Strap footing (b) Raft footing

 (c) Trapezoidal combined footing (d) Mat footing

6. In raft footing, if the C.G of the load coincide with the centroid of the raft, the upward load is considered as

 (a) Non uniform pressure (b) Uniform pressure

 (c) Excess pressure (d) None of the mentioned

7. Enlarging the stem of bore hole at the depth, is done by using

 (a) Spiral auger (b) Under-reamer

 (c) Boring guide (d) None of the mentioned

8. The allowable load which the pile can carry safely is determined on the basis of

 (a) Factor of safety (b) Load test

 (c) Stability of the pile foundation (d) All of the mentioned

9. Cantilever retaining walls can safely be used for a height not more than

(a) 3m (b) 4m (c) 5m (d) 6m

10. The earth pressure at rest is calculated by using

 (a) Euler’s theory (b) Rankine’s theory

 (c) Bending theory (d) Theory of elasticity

 PART - B (5 x 2 = 10 Marks)

11. List out the various methods of site exploration.

12. Draw the pressure distribution diagram for sand and clay layer at the beneath of rigid

 footing.

13. Under what situation, raft foundation adopted?

14. What is meant by group settlement ratio?

15. Write the assumptions of Coulomb’s Theory.

 PART - C (5 x 16 = 80 Marks)

16. (a) Explain any two methods of site exploration in detail. (16)

Or

(b) Briefly discuss about the various types of boring with neat sketch. (16)

17. (a) Explain different types of shear failures of soil with neat sketch. (16)

 Or

 (b) Discuss in detail about the plate load test by reaction truss method with suitable

 sketch. (16)

18. (a) Write the IS codal provisions for design of raft foundation.(16)

 Or

 (b) Briefly discuss about the various types of footing with neat sketch. (16)

19. (a) Define pile foundation. Briefly discuss about the type of pile and their functions. (16)

Or

(b) Explain the method of determining the load carrying capacity of a pile. (16)

20. (a) (i) A retaining wall is 5 m high. It’s back is vertical and it has got sandy backfill

 upto it’s top. The top fill is horizontal and carries a uniform surcharge of

 80 kN/m2. Determine the active earth pressure on the wall per meter length of the

 wall. Water table is 1.5 m below the top of the fill, γd = 18.5 kN/m3. Moisture

 content above water table is 13%. ɸ=30°. G = 2.6 and ɳ = 30. The wall friction

 may be neglected. (12)

 (ii) Write a short notes on type of retaining wall. (4)

Or

(b) Explain in details about the Culmann’s graphical method for finding active pressure with a neat sketch. (16)