995 Register No.:

April 2019

Time – Three hours
(Maximum Marks: 75)

[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory. Answer any FOUR questions from the remaining in each PART – A and PART – B

(2) Answer division (a) or division (b) of each question in PART – C.

(3) Each question carries 2 marks in PART – A, 3 marks in Part – B and 10 marks in PART – C.]

PART – A

1. What are the Atterberg limits?
2. What is Darcy's law?
3. What is meant by OMC?
4. What do you mean by undisturbed soil samples?
5. Define hydraulic gradient.
6. What are the requirements of good foundation?
7. List any two types of machine foundation based on their structu form.
8. What is safe bearing capacity of soil?

PART – B

9. What are the factors affecting permeability?
10. Distinguish between compaction and consolidation.
11. What are the objects of soil stabilization?
12. What is piping and exit gradient?
13. Explain differential settlement.
14. What is under reamed pile foundation?
15. Distinguish between free vibration and forced vibration.
16. Write short notes on plasticity index.

[Turn over.....

PART – C

17. (a) A soil sample has a porosity of 40%. The specific gravity of soil is 2.65. Calculate (i)Voids ratio (ii)Dry density (iii)Unit weight if the soil is 50% saturated and (iv)Unit weight if the soil is completely saturated.

(Or)

(b) Describe falling head permeability test with sketch.

18 (a) Explain any three methods of soil stabilization.

(Or)

(b) Explain any one type of geophysical method of soil exploration.

19. (a) (i) What are the uses of flow net?
(ii) Draw the different types of seepage flownets below hydraulic structures.

(Or)

(b) Explain general shear failure and local shear failure.

20. (a) Explain pile load test for finding out load carrying capacity of a pile with sketch.

(Or)

(b) (i) Explain swell potential and swell pressure.
(ii) Explain any one method of foundation for expansive soil.

21. (a) What are the steps involved in the design of machine foundation for reciprocating type machine.

(Or)

(b) Explain with sketches any two types of foundation for the construction of transmission line towers.
