363 Register No.: [ ]

April 2018

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. Define unit weight of soil.
2. What is meant by co-efficient of permeability?
3. Define shear strength of soil.
4. Define hydraulic gradient.
5. What is meant by shallow foundation?
6. Define swelling potential.
7. What are the forces acting on the transmission line towers?
8. What do you mean by piping?

PART – B

9. Explain soil phase diagram.
10. What are the objects of shear test?
11. Write short notes on degree of compaction.
12. Explain exit gradient.
13. Show the sketch of inverted arch foundations.
14. Explain free swell test.
15. Explain the safety of a tower foundation checked against for overturning.
16. What are the factors affecting permeability?

[Turn over.....

PART – C

17. (a) Explain with neat sketch the laboratory test for determining liquid limit.

(Or)

(b) A constant head permeability test was carried out on a cylindrical sample of 10cm diameter and 15cm height, 160m³ of water was collected in 1.75mm under a head of 30cm. Compute the co-efficient of permeability in m/sec and the velocity of flow in m/sec.

18. (a) What is optimum moisture content? Explain the standard proctor compaction test to determine the density of soil with sketch.

(Or)

(b) What is meant by soil stabilization? Explain the different methods of soil stabilization.

19. (a) Explain the properties and applications of flow nets.

(Or)

(b) Explain with sketch the plate load test to determine the bearing capacity of soil.

20. (a) Explain with neat sketch the negative skin friction.

(Or)

(b) Explain.

(i) Driven piles. (ii) Under reamed piles.

21. (a) What are the general requirements of the machine foundation?

(Or)

(b) Explain any two types of tower foundation.
