

[5254]-17

B.E. (Civil Engineering)

ADVANCED FOUNDATION ENGINEERING

(2008 Pattern) (Elective - III)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10, Q11 or Q12*
- 2) Figures to the right indicate full marks*
- 3) Use of electronic calculator is allowed.*
- 4) Assume suitable data if necessary.*
- 5) Neat diagrams must be drawn wherever necessary.*

- Q1)** a) Explain the various stages involved in subsoil investigation studies for dam project. [6]
- b) Discuss a case study of failure of a deep foundation. [6]
- c) How will you plan for subsoil exploration programme for an offshore structure? [6]

OR

- Q2)** a) Discuss IS code provisions for soil exploration for tunnels. [6]
- b) State the field tests involved in deep investigation studies and explain any one. [6]
- c) Does increasing the number of bore holes cause an increase in revealing any additional information regarding the subsoil? Explain. [6]

- Q3)** a) Discuss the provisions for design and construction of raft foundations as per IS 2950-1965. [8]
- b) Explain the step by step procedure for design of combined trapezoidal footing along with the formulae involved. [8]

OR

- Q4)** a) State the various methods of raft design and explain any one. [8]
- b) Explain the considerations in the design of combined footings. [8]

P.T.O.

- Q5) a)** How is the testing of piles subjected to tensile loads carried out? explain. **[8]**
b) Explain the Reese and Matlock theory for laterally loaded piles. **[8]**

OR

- Q6) a)** Write short note on racer piles and discuss its design considerations. **[8]**
b) Explain cyclic pile load test with neat sketch. **[8]**

- Q7) a)** Under which conditions under reamed piles are suitable as foundations, explain. **[8]**
b) Explain the step by step procedure for construction on double under reamed pile foundation with sketches. **[8]**

OR

- Q8) a)** Discuss design aspects of 2 bulb under reamed pile foundation. **[8]**
b) State the methods for design of laterally loaded piles and explain any one. **[8]**

- Q9) a)** Write short note on Sand drains and its design aspects. **[8]**
b) Stone columns are to be provided for an industrial establishment site. **[8]**

OR

- Q10) a)** What are the changes required to be incorporated in design for providing under reamed pile to cater for tensile loading. **[8]**
b) Compare the design and suitability aspects of stone columns and sand drains. **[8]**

- Q11) a)** Discuss in detail any case study related to failure of well foundation. **[9]**
b) Describe in detail the design considerations in well foundation. **[9]**

OR

- Q12) a)** What are the IRC code provisions for well foundation, Explain. **[9]**
b) What are the measures to be taken to avoid failure of well foundation. **[9]**

