

Total No. of Questions : 10]

SEAT No. :

P3031

[Total No. of Pages : 3

[5354]-517

B.E. (Civil)

**ADVANCED FOUNDATION ENGINEERING
(2012 Pattern) (Elective - III) (w.e.f.-June 2015)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Answer Q.1 or Q.2; Q.3 or Q.4; Q.5 or Q.6; Q.7 or Q.8 and Q.9 or Q.10*
- 2) *Figures to the right indicate full marks.*
- 3) *If necessary, assume suitable data and indicate clearly.*
- 4) *Use of electronic pocket calculator is allowed.*

Q1) a) What are I.S. code provisions for subsoil exploration of offshore structures with respect to preliminary and detail investigations. [5]

b) Explain any one case study of failure of bridge foundation with all technical details. [5]

OR

Q2) a) Explain in detail the IRC provisions for subsoil exploration of National highways. [5]

b) Explain any one case study of failure of Multistorey building foundation with all technical details. [5]

Q3) a) Explain cyclic pile load test with a suitable sketch and interpretation of skin friction and point bearing resistance from the test data. [6]

b) What are different types of deep foundations. Also, explain I.S. code provisions with respect to minimum depth. [4]

OR

Q4) a) Draw a neat sketch of sand drains and explain functions of each component parts. Also, explain typical design guidelines for construction of sand drains. [6]

b) Write a short note on "Design of piles subjected tensile loads". [4]

P.T.O.

Q5) a) What are the various components of total settlement? Also, Explain how immediate settlement and settlement due to consolidation is evaluated for shallow foundations. [8]

b) What is raft foundation? Explain conventional method for design of raft foundation with basic assumptions made in the method. [8]

OR

Q6) a) Explain any one field method used for design of combined footing. Also, explain the data obtained from field test and its interpretation in design of combined footing. [8]

b) Explain the concept of 'useful width' is used to counter balance the effect of inclined loading in design of shallow foundations. [8]

Q7) a) Explain the various components of a well foundation with a suitable sketch. [8]

b) Draw a neat sketch of rockfill dam. Explain the functions of each component parts. Also, explain typical situations where rockfill dam is used. [8]

OR

Q8) a) Explain the depth of foundation wells and Grip depth as per IRC with suitable sketches. [8]

b) What are various types of coffer dams? Explain [8]

i) Sheet pile wall and

ii) Cellular coffer dam with suitable sketches.

Q9) a) Explain the estimation of [9]

i) Vertical stress

ii) Horizontal radial stress and

iii) Horizontal circumferential stress in the vicinity of shafts at a particular depth below ground surface

b) Explain the terms [9]

- i) Ditch conduit
- ii) Positive projecting conduit and
- iii) Negative projecting conduit with suitable sketches.

OR

Q10)a) Explain the stress distribution around tunnel situated at a great depth below ground surface for [9]

- i) Elastic case and
- ii) Plastic case

b) What is imperfect ditch conduit. Explain with suitable sketch. [5]

c) Write a short note on "Estimation of load on conduit due to live loads.[4]

