Total No. of Questions : 12]

SEAT No. :

P1686

[Total No. of Pages : 3

[4859]-17
B.E. (Civil)
ADVANCED FOUNDATION ENGINEERING
(2008 Pattern) (Elective-III) (Semester-II)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Answer any three questions from each section.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Your answers will be valued as a whole.***
5) ***Use of electronic pocket calculator & IS codes & IRC codes are not allowed.***
6) ***Assume suitable data, if necessary.***

SECTION-I

Q1) Explain the following: **[18]**

a) IS code provisions for subsoil explorations.

b) Significant depth.

c) IRC provisions for explorations of roads.

OR

Q2) a) Discuss in brief different case studies for failures of foundation. **[9]**

b) Explain any two 'Geophysical Methods'. **[9]**

Q3) a) Compare the following raft foundation design, **[10]**

i) Conventional Method.

ii) Soil line method.

b) How will you calculate safe load & settlement from field test data, for a square footing? Explain by sample calculations. **[6]**

OR

P.T.O.

Q4) a) Explain 'Hansen's Method'. **[8]**

b) Explain the use of 'Geo-slope'. **[8]**

Q5) a) How the Q_a is determined in a cyclic pile load test? **[8]**

b) Discuss various types of piles based upon the functions & materials used. **[8]**

OR

Q6) a) What is 'LLP'? How E_s, T & η_z is determined, for a LLP? **[8]**

b) Explain the steps for 'Reese & Matlock' method. **[8]**

SECTION-II

Q7) a) Design a sand drains system, showing sample calculations, for the following cases, **[10]**

i) $kx = ky$.

ii) $kx = 5\ ky$.

b) Explain the steps for 'Stone column design'. **[8]**

OR

Q8) a) How will you determine LCC of under reamed pile for, **[10]**

i) Clayey soil.

ii) Sandy soil.

b) Explain the procedure for construction of 'stone column'. **[8]**

Q9) a) Explain the design provisions for, **[8]**

i) Well curb.

ii) Cutting edge.

iii) Steining thickness.

iv) Bottom plug.

b) Explain 'Lacey's' design for, **[8]**

i) Grip length.

ii) NSD.

OR

Q10)a) Discuss the provision made as per IRC for well foundation design. **[8]**

b) Explain 'Banerjee & Gangopadhyay Analysis'. **[8]**

Q11)a) Discuss different types of 'cofferdams'. **[8]**

b) Explain the steps for 'Anchared sheet pile design'. **[8]**

OR

Q12)a) Explain the steps for circular, cellular, cofferdam design. **[8]**

b) Compute the 'D' & 'P' in anchor rod, for a sheet pile cofferdam of 6.5m high, retaining soil as a backfill & below D.L. is same with following data,

$\phi = \phi' = 30°$, $\gamma_{sat} = 23$ kN/m^3, $\gamma = 19$ kN/m^3, Anchar rod is 1.5m below the top, GWT = 3m above D.L. Use 'Free Earth Support' method. **[8]**

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