Total No. of Questions : 12]

SEAT No. :

**P2647**

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# B.E. (Civil)
# ADVANCED FOUNDATION ENGINEERING
## (2008 Pattern) (Semester - II) (Elective - III) (401007 B)

*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 following; **[8]**

i) Significant Depth

ii) IS code provisions for subsoil exploration?

b) Discuss IRC provisions for number of borings & different guidelines, for depth of exploration. **[8]**

OR

***Q2)*** a) Discuss in brief different case studies for failure of foundation. **[8]**

b) Explain **[8]**

i) Seismic Refraction Method

ii) Electrical Resistivity Method

***Q3)*** a) Explain the following with comparison, for Raft Foundation, **[8]**

i) Conventional method.

ii) Soil line method

b) Explain the consideration in the design of combined footings. **[8]**

OR

***P.T.O.***

***Q4)*** a) Discuss the steps for 'Hansen's Method' for shallow foundation design, subjected to inclined loads. **[8]**

b) Discuss the utility of various softwares, for Geotechnical design, w.r.t. 'Geo-slope'. **[8]**

***Q5)*** a) How the Qa is determined, for the pile, under test, in a cyclic pile load test? Explain by drawing a sample graph. **[9]**

b) How is the testing of pile subjected to tensile loads carried out? Explain. **[9]**

OR

***Q6)*** a) Explain the steps for 'Reese & Matlock' method. **[9]**

b) What is 'LLP'? How Es, T & $\eta$ z is determined for a LLP. **[9]**

***Q7)*** a) Explain the methods for determination of LCC, of Under reamed pile, for following cases, i. Clayey soil ii. Sandy soil. **[8]**

b) Discuss design aspects of double under reamed pile foundation. **[8]**

OR

***Q8)*** a) Explain the design steps for construction of sand chains. **[8]**

b) Explain the step by step procedure for construction on double under reamed pile foundation with sketches. **[8]**

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

i) well curb

ii) cutting edge

iii) steining thickness

iv) bottom plug

b) Discuss the method for scour level, according to IRC & explain the Lacey's design for,i. Grip length ii. Normal scour depth **[8]**

OR

***Q10)***a) Discuss the provisions made as per IRC for Caisson design. **[8]**

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

***Q11)***a) Explain the steps for 'Anchor sheet pile design'. **[9]**

b) Describe in detail the design considerations in well design. **[9]**

OR

***Q12)***a) Discuss construction of common types of 'cofferdams'. **[9]**

b) What are the measures to be taken to avoid failure of well foundation. **[9]**