Total No. of Questions : 10]

SEAT No. :

P2965

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[5154]- 517
B.E. (Civil)
ADVANCED FOUNDATION ENGINEERING
(2012 Pattern) (w.e.f. June 2015) (End Sem.) (Elective -III (2)) (Semester -II) (401009 B)

Time :2½ Hours] *[Max. Marks :70*

Instructions to candidates:

1) ***Answers Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) What are the I.S. code provisions for subsoil exploration of airports for runways for preliminary and detail investigations. **[5]**

b) Draw a typical layout of canal with all technical details as per I.S. code provisions and explain functions of each component. **[5]**

OR

Q2) a) Explain how would you plan subsoil explorations for preliminary and detail investigations for the construction of bridge on national highway. **[5]**

b) Explain any one case study of failure of a Earthdam with all technical details. **[5]**

Q3) a) Explain classification of piles based on materials & functions. **[5]**

b) Write a short note on " Testing of piles subjected to tensile loads". **[5]**

OR

Q4) a) Draw a neat sketch of sand drains and explain functions of each components. **[5]**

b) Explain the static method to estimate load carrying capacity of underreamed piles. Write meaning of each term. **[5]**

Q5) a) Explain how effect of incline loadings are considered in the design of shallow foundations. **[8]**

b) Explain the term " Raft foundation is called a floating foundation". Also, explain the design of Raft foundation on sandy soil from the data obtained by SPT test. **[8]**

OR

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Q6) a) Explain the equations proposed by i) Terzaghi and ii) Skempton for estimation of net ultimate bearing capacity of shallow foundation. **[8]**

b) Explain static method for estimation of load carrying capacity of friction pile. **[8]**

Q7) a) Explain the various forces acting on well foundation.Also, explain any four forces, How are evaluated using the provisions of IS & IRC codes.**[8]**

b) What is tilt and shifts in case of well foundation? What are tolerable limits of tilt & shift. What are the corrective measures adopted to counter-act tilt & shift. **[8]**

OR

Q8) a) What is cofferdam? What are the situations, where cofferdam is used. Explain any two cofferdams with suitable sketches. **[8]**

b) Explain the design guidelines as per IRC and IS codes for proportioning of component parts of well foundation (any three) **[8]**

Q9) a) What is positive projecting conduit? Explain the different types of positive projecting conduits. **[9]**

b) Explain how load on a rigid ditch conduit is evaluated. **[9]**

OR

Q10) Write short notes on: **[18]**

a) Imperfect ditch conduit

b) Negative projecting conduit

c) A rigid ditch conduit.