

First Semester M. E. Civil (Geotech. Engg.) Examination

CONSTRUCTION METHODS IN GEOTECHNICAL ENGINEERING

I SFGE 4

P. Pages : 2

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) All question carry equal marks.
(2) Due credit will be given to neatness and adequate dimensions.
(3) Assume suitable data wherever necessary.
(4) Illustrate your answer wherever necessary with the help of neat sketches.
(5) Attempt any **five** questions out of **six**.

1. Attempt any **two** :—

- (a) What are the advantages and disadvantages of precast piles. 8
- (b) Differentiate between single and double acting steam hammer. 8
- (c) Explain construction of raft foundation with neat sketch. 8

2. Attempt any **two** :—

- (a) Discuss the factors affecting the selection of a type of pile in a construction. 8
- (b) Explain effect of driving on following types of pile :
 - (i) Concrete piles
 - (ii) Steel H piles
 - (iii) Pipe piles
 - (iv) Timber piles. 8
- (c) State the advantages and disadvantages of the timber pile. 8

3. Attempt any two :—

- (a) Explain length and penetration of sheet piling, extraction of sheet piles and sealing sheet piling to existing structures. 8
- (b) Why the circular cofferdam is the most preferable than the other type of cofferdam? Explain by giving suitable reasons. 8
- (c) Discuss in detail the practical considerations in cofferdam construction. 8

4. Attempt any two :—

- (a) Explain in detail various criteria for blast design. 8
- (b) Explain with neat sketches drilling and blasting presplitting rock technique. 8
- (c) What are different types of caissons ? Also discuss under what situation they are provided. 8

5. Attempt any two :—

- (a) Explain with sketches the drift method of driving a tunnel. 8
- (b) Discuss different operations, in sequence of tunnel driving in rock mass. 8
- (c) What are the different components of tunnel boring machines ? 8

6. Attempt any two :—

- (a) Explain different types of high explosive for blasting. 8
- (b) What are the factors affecting spacing of blastholes ? Suggest any empirical formulae for determining spacing. 8
- (c) Explain different methods of loading blast hole with explosives. 8

