

[ REVISED COURSE ]

( 3 Hours )

[Total marks : 80 ]

NOTE:.

- Question No. 1 is compulsory.
- Attempt any Three out of the remaining five questions.
- Figure to the right indicates full marks.
- Assume any suitable data and clearly state the same.

- Q.1 A) Enlist the different methods of tunneling in soft soil. State the various stages in construction of tunnel along with the equipments required. Describe with neat sketches any one method. 10  
 B) Discuss the advantages and disadvantages of using equipments and machineries at construction site. 10
- Q.2 A) What is meant by balancing of equipment? Cycle time of power shovel of 2 m<sup>3</sup> capacity is 30 seconds. Truck of 8 m<sup>3</sup> and 12 m<sup>3</sup> are available at rate of Rs. 800 and Rs. 1200/day respectively for 10 hrs. The cycle time of 8 m<sup>3</sup> truck is 14 minutes. And 12 m<sup>3</sup> trucks are 16 minutes. How do you balance the operation of shovel and truck with least idle time and minimum cost. 10  
 B) What are commonly used Hauling equipments in construction industry? Explain their suitability and factors affecting their performance. 10
- Q.3 A) What are the different types of crushers used for production of aggregate? Describe Cone crusher with neat sketch stating components and it's working. 10  
 B) Define shotcreting. What are the different methods of shotcreting? State the application of shotcreting with merits. 10
- Q.4 A) What do you understand by soil stabilization? What properties of ground are improved by stone column? Discuss the ground improvement technique by Stone column with a neat sketch stating diameter, depth, spacing and materials of columns. 10  
 B) Explain the step by step procedures of blasting in hard rock. What precautions are required to be taken during transportation and storing of blasting materials? 10
- Q.5 A) What is vacuum concrete? Why is it necessary? Explain the step by step procedure of vacuum concreting with sketch. Enlist its applications. 10  
 B) Write a report on visit to a construction site of a fly over bridge. Discuss mainly about equipments used and methods adopted for construction. 10
- Q.6 Write short notes on any four. 20
- i- Jumbo Drill
  - ii- Sand drain
  - iii- Advance form work techniques
  - iv- Drilling pattern
  - v- Cladding types with suitability