

Total No. of Questions : 12]

SEAT No. :

P2913

[Total No. of Pages : 3

[5669]-502

T.E. (Civil) (Semester - I)

**INFRASTRUCTURE ENGINEERING & CONSTRUCTION
TECHNIQUES
(2015 Pattern)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10 and Q.11 or Q.12.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

Q1) Discuss the Scope of infrastructure engineering in national and global development. [6]

OR

Q2) a) Draw neat labeled sketch of permanent way. [3]

b) Define the terms : [3]

- i) Permanent way
- ii) Rail
- iii) Ballast

Q3) a) Explain in brief concept of Directed Track Maintenance (DTM). [4]

b) Write short note on Short and long welded rails. [4]

OR

Q4) a) Define following terms : [4]

- i) Tongue rail
- ii) Stock rail
- iii) Crossing
- iv) Points

b) What are the function of points & crossing. [4]

P.T.O.

Q5) Explain with examples the necessity of mechanization in construction. [6]

OR

Q6) Enlist various methods of dewatering systems. Explain any one. [6]

Q7) a) State the general sequence of operation for driving tunnels through Hard Rock. [6]

b) State the various methods of tunneling in soft ground. Explain NATM in brief. [6]

d) Write a short note on classification of tunnel. [4]

OR

Q8) a) Discuss the points to be considered when determining the shape and size of tunnel. [6]

b) Define Mucking. State various methods of Mucking. Explain any one in brief with neat sketch. [6]

c) Write a short note on Tunnel Boring Machine. [4]

Q9) a) Explain in brief following: [6]

i) Fenders

ii) Dolphins

b) What are the various points to be considered for selection of a site for Harbour? Explain any two in detail. [6]

c) Define Dock. Differentiate between wet dock and dry dock. [4]

OR

Q10)a) Explain in brief classification of harbor based upon protection needed. [6]

b) Define breakwater wall. Enlist types of breakwater. What is the necessity of it? [6]

c) Explain in brief merits & demerits of water transportation. [4]

- Q11)**a) Enlist the various earth moving equipments and explain their significance civil engineering construction. [6]
- b) Distinguish between power shovel & back hoe giving sketches, working operations & uses of each. [6]
- c) Write short note on Economic maintenance & repair of construction equipment. [6]

OR

- Q12)**a) Discuss the various factors affecting the selection of earth moving Equipments. [6]
- b) Construction machinery Cost Rs. 11 Cores. The salvage value of the same is 11 percent. Its useful life is 12 years. Estimate the depreciation of the equipment using [6]
- i) Straight line method
- ii) Double Declining balance method.
- c) Write short note on dumpers. [6]

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