

Total No. of Questions : 10]

SEAT No. :

**P2363**

**[4758] - 505**

[Total No. of Pages :3

**T.E. (Civil)**

**INFRASTRUCTURE ENGINEERING**

**( 2012 Course) (Semester - I) (End-Sem.) (301002)**

*Time :2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q.9 or Q.10.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume suitable data if necessary.*

**Q1) a)** Write a note on Role of Infrastructure the economic progress of India with suitable examples. **[5]**

b) Explain the causes, effects and remedies of rail creep. **[5]**

OR

**Q2) a)** With suitable examples, justify the need for mechanization in Indian construction sector. **[5]**

b) Discuss the ideal requirements of a permanent way. **[5]**

**Q3) a)** With the help of neat labeled sketch, explain the electro osmosis dewatering. **[5]**

b) Differentiate between tunnel formwork and slip form. **[5]**

OR

**Q4) a)** Explain the significance of transportation infrastructure with suitable examples. Discuss various provisions proposed in the 12<sup>th</sup> five year plan for transportation infrastructure. **[5]**

b) Discuss in brief different methods to reduce the wear of rails. **[5]**

*P.T.O.*

- Q5)** a) Classify the tunnels on the basis of their Purpose. Explain why they are suitable for a particular purpose. [6]
- b) Explain the following term with neat sketches. [6]
- i) Pilot Tunnel
  - ii) shaft
  - iii) Portal
- c) What are the advantages of tunnel over open cut. [4]

OR

- Q6)** a) State the various methods of tunneling in soft ground. Explain Needle Beam Method in brief. [6]
- b) Write sequence of operations of Tunneling in soft soils. [6]
- c) Discuss in brief advantages and disadvantages of TBM. [4]
- Q7)** a) Define port. Distinguish between port & harbour. [6]
- b) Write short note on dry dock and wet dock. [6]
- c) Define breakwater. What is the necessity of it. [4]

OR

- Q8)** a) Discuss the general layout of the port along with its components. [6]
- b) Enlist the types of breakwaters and explain any two types with neat labeled sketch. [6]
- c) Define the following terms: [4]
- i) Quay
  - ii) Bulkhead
  - iii) Wharves
  - iv) Jetty

**Q9) a)** Construction machinery costs Rs. 45,000. Its useful life is 5 years. The salvage value at the end of five year is Rs. 4,500. Estimate the yearly depreciation of the equipment using; [6]

i) Straight line method

ii) Double -Declining balance Method

Tabulate your results.

b) Discuss in brief various factors affecting selection of equipment for a project. [6]

c) What are the different operations involved in earthwork. Enlist different equipment's used in these operations. With the help of a neat labeled sketch, explain any one equipment. [6]

OR

**Q10)a)** Differentiate between Crawler Tractor and Wheeled Tractor. [6]

b) Explain in detail the operating costs of construction equipment. [6]

c) Explain with neat labeled sketch "Dragline". What are the applications of it. [6]

