

Total No. of Questions : 12]

SEAT No. :

P3116

[4858] - 105

[Total No. of Pages : 3

T.E. (CIVIL)

**Infrastructure Engineering and Construction Techniques
(2008 Pattern)**

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Answer 3 questions from each section.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *Use of logarithmic tables, Slide rule, Mollier Charts, electronic pocket calculator, and steam table is allowed.*
- 6) *Assume suitable data, if necessary.*

SECTION - I

- Q1)** a) Write a note on organization of Indian Railways and also mention the various zones of Indian railways. [6]
- b) Explain in brief the necessity of uniformity of gauge in our country. [6]
- c) Define Ballast. State the various test carried out on ballast to check their suitability. [4]

OR

- Q2)** a) Define formation. State & explain various reasons of failure of formation [6]
- b) Explain in brief the advantages & disadvantages of concrete sleepers. [6]
- c) Explain in brief the role of transportation in Infrastructure development of a country. [4]

- Q3)** a) Define the following terms : [6]
- i) Actual cant
 - ii) Cant Excess
 - iii) Negative superelevation
- b) Write a short note on Measure shovel packing [6]
- c) What do you mean by Grade Compensation on Horizontal Curve. Why it is necessary. [4]

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OR

- Q4)** a) Explain with a neat sketch overriding and undercut switches. [6]
b) What are the various types of rail maintenance. Also state the Importance of track maintenance [6]
c) Draw a neat labeled diagram of Left Hand Turnout. [4]

- Q5)** a) What is Tunnel. State the merits and demerits of Tunnel. [6]
b) Explain in brief Heading and Bench Method of Tunnelling [6]
c) Define Harbour. What are the requirements of a good harbour. [6]

OR

- Q6)** a) What are Tunnel portals. What points are considered while designing portals [6]
b) Write a short note on Types of Harbours [6]
c) Explain in brief the following : [6]
i) Buoys
ii) Dolphins
iii) Breakwater wall

SECTION - II

- Q7)** a) Explain in brief the need of automation in the construction industry. Also state the merits and demerits [6]
b) Explain in brief the following : [6]
i) Precast concrete
ii) Autoclave curing
c) Explain in brief the importance of construction sector in the economic development of the country [4]

OR

- Q8)** a) Draw a neat labelled sketch of static tower crane [4]
b) Differentiate between Labour oriented work and Equipment oriented work [6]
c) What is the importance of joint in precast construction? Draw typical joint connections in prefabricated structure for [6]
i) Column-Beam and
ii) Beam-Slab

- Q9)** a) What are the various factors that are considered for selection of an equipment for a particular work [6]
b) Explain in brief the factors affecting the output of dragline [4]
c) What do you mean by depreciation of an equipment. Explain any one method in brief. [6]

OR

- Q10)** a) Explain in brief the following : [6]
i) Repair cost
ii) Economic Life
iii) Labour cost
b) Explain in brief the methods of finding out productivity of equipment [4]
c) What is work cycle. Explain the work cycle of a dumper [6]

- Q11)** a) Explain in brief the vacuum dewatering system [6]
b) Differentiate between Guniting and Shot creting [6]
c) Write a short note on : [6]
i) Drilling Equipments
ii) Grouting

OR

- Q12)** a) Draw a schematic diagram of RMC plant. Also state the advantages of RMC plant [6]
b) Explain in brief the vacuum dewatering system [6]
c) Write a short note on Tremie Pipe method of concreting [6]

