

May 2015

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Total No. of Questions : 12]

SEAT No. :

P2249

[4758] - 5

[Total No. of Pages :4

T.E. (Civil)

**INFRASTRUCTURE ENGINEERING AND CONSTRUCTION
TECHNIQUES**

(2008 Course) (Semester - I)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer three questions from section I and three questions from section II.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right side indicate full marks.*
- 4) Assume suitable data, if necessary.*

SECTION - I

- Q1) a)** Draw a typical cross section of a permanent way and show various parts. Also state the requirements of a good track. **[6]**
- b) Explain in brief the importance of coning of wheel. Also draw a neat sketch. **[6]**
- c) Write a short note on minimum depth of ballast cushion. **[6]**

OR

- Q2) a)** State the comparison of wooden sleepers & concrete sleepers. **[6]**
- b) Explain in brief the importance of coning of wheels and tilting of rails with the help of a neat sketch. **[6]**
- c) What is creep? What are its effects? State the maximum permissible values of the same on Indian Railways. **[6]**

- Q3) a)** Define following terms: **[6]**
- i) Turnout

P.T.O.

- ii) Tongue rail
 - iii) Stock rail
 - iv) Switch
 - v) Crossing
 - vi) Points
- b) Write a short note on Track Maintenance. [5]
- c) Define gradient. State the various types of gradient. [5]

OR

Q4) Write a short note on: [16]

- a) Measured shovel packing
- b) Types of switches in points & crossing
- c) Mono rail and Metro Railway
- d) Grade compensation

- Q5)** a) Compare the advantages and disadvantages of tunnel with open cut. [6]
- b) Explain in brief NATM method of tunneling. [6]
- c) Define Dock. Differentiate between Wet Dock and Dry Dock. [4]

OR

- Q6)** a) What are the various points to be considered for selection of site for Harbour. [4]
- b) State the general sequence of operation for driving tunnels through hard rock. [4]
- c) Explain in brief Merits and Demerits of water transportation. [4]
- d) Define breakwater wall. What is the necessity of it? [4]

SECTION - II

- Q7) a)** Explain the construction of high rise structures considering following points . [6]
- i) Construction Techniques
 - ii) Safety
- b) Explain the importance of construction sector in the economic development of a country. [6]
- c) Write a short note on quality control in construction of Prefabricated elements. [4]

OR

- Q8) a)** State the difference between equipment oriented construction and labour oriented construction. [6]
- b) Write a comment on the difference in the construction techniques of high rise building and regular construction. [4]
- c) Differentiate between [6]
- i) Precast and prefabricated elements
 - ii) Labour and equipment oriented works.

- Q9) a)** Explain in brief the factors affecting the output of dragline. [6]
- b) Write a short note on following: [8]
- i) Power shovels,
 - ii) Trenching Machinery
- c) State the factors affecting the selection of machinery for any earth work. [4]

OR

- Q10)a)** Write short note on: [6]
- i) Preventive maintenance of equipments.
 - ii) Record keeping of equipments.
- b) What is work cycle? Explain in work cycle of a Dumper. [6]
- c) What do you mean by Depreciation of equipment? State various methods of depreciation and explain any one in brief. [6]

Q11)a) Differentiate between Guniting and Shotcreting. Also write one application of each. [4]

b) Draw a neat sketch of primary and secondary crushers. Also explain difference them. [6]

c) Enlist the methods of underwater concreting & Explain any one method of underwater concreting in detail. [6]

OR

Q12)a) Explain in brief the Vacuum Dewatering System. [6]

b) What is slip-form shuttering? State the distinct advantages of this method over the conventional method. [4]

c) What are the factors affecting the efficiency of concrete pumps? [6]

