

Total No. of Questions – [08]

Total No. of Printed Pages [02]

G.R. No.

Paper Code- V218-113 (BE-FF)

May 2019-ENDSEM (Backlog)

S. Y. B. TECH. (Civil Engineering) (SEMESTER-I)

COURSE NAME: Infrastructure Engineering

**COURSE CODE: CVUA21173
(2017 PATTERN)**

Time: [2 Hours]

[Max. Marks: 50]

Instructions to candidates:

- 1) Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8
- 2) Figures to the right indicate full marks.
- 3) Use of scientific calculator is allowed
- 4) Assume suitable data wherever required and state them clearly

Q.1) a) State 3 advantages and 3 drawbacks of: (i)PPP, (ii)Smart City. [6 marks]

OR

b) State three differences each between: (i)Roadways-Railways, (ii)Waterways-Airways. [6 marks]

Q.2) a) Draw neat labelled sectional view of a railway track. State uses of any three components of the track. [6 marks]

OR

b) State three differences between each of the following: (i)Wooden sleepers - Concrete sleepers, (ii)Narrow gauge railway - Broad gauge railway. [6 marks]

Q.3) a) Determine super-elevation and maximum permissible speed for trains on a high speed BG track. Use following data: (i)There is a 2^o transitioned curve for the track, (ii)Maximum sanctioned speed is 110 km/h, (iii)Speed decided by the chief engineer for calculating equilibrium super-elevation is 80 km/h. [6 marks]

OR

b) Draw neat labelled sketch of fan shaped layout of sleepers at a Right Hand turnout. Briefly explain the necessity of such a layout. [6 marks]

Q.4) a) Explain with sketch any one type of movable bridge. [4 marks]

OR

b) With reference to tunnels, briefly explain the terms Mucking & Drainage. [4 marks]

- Q. 5) a) Explain with sketch natural & artificial harbors with examples. [6 marks]
b) Explain dry dock with neat labelled section. [4 marks]
c) Describe any one type of dredging with sketch. [4 marks]

OR

- Q.6) a) Clearly explain different types of ports. [6 marks]
b) With neat sketch explain tetrapod & its use. [4 marks]
c) Write a note on 'breakwater' (with sketch). [4 marks]

- Q.7) a) State six factors considered for selection of site for an airport. [6 marks]
b) Write a note on 'zoning' with reference to an airport. [4 marks]
c) Explain with sketch Runway and its importance for an airport. [4 marks]

OR

- Q.8) a) With the help of sketches, explain three possible orientations of runways for airports. [6 marks]
b) Find actual length of runway for a small airport located at MSL with a standard temperature of 15°C using following data: Monthly mean of average and maximum daily temperatures for a particular month are 40°C and 50°C , Basic runway length 1 km. [4 marks]
c) Define: Airport Elevation, Apron, Taxiway, and Threshold. [4 marks]
