

Paper ID [CE302]

(Please fill this Paper ID in OMR Sheet)

B.Tech. (Sem. - 6th/7th)

TRANSPORTATION ENGINEERING - II (CE - 302)

(Paper - I)

Time : 03 Hours

Maximum Marks : 60

Instruction to Candidates:

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Four** questions from Section - B.
- 3) Attempt any **Two** questions from Section - C.

Section - A

Q1)

(10 × 2 = 20)

- a) Define a permanent way and mention its components.
- b) What are the different types of rails? What are the advantages of using F.F. rails?
- c) Explain Cant and Cant deficiency.
- d) A Broad gauge track has a sleeper density of $(n + 6)$. If the track is laid with welded rails of 26 meter length, find out the number of sleepers on rail length.
- e) What are objects of signaling?
- f) What is the necessity of points and crossings on Railways?
- g) What are the functions of a Railway station.
- h) Gradients in station yards.
- i) List various factors controlling taxiway layout.
- j) What do you understand by zoning laws?

Section - B

(4 × 5 = 20)

- Q2) What is meant by Wear of rails? How do you classify the Wear? Discuss the various Causes of wear and suggest suitable measures to reduce the wear of rails.

- Q3)** What should be the length of track (i) to overcome temperature stress (ii) to prevent creep for equilibrium? When it is given $A = 80\text{cm}^2$, $\alpha = 1.5 \times 10^{-5}$ per $^{\circ}\text{C}$, $E = 25 \times 10^5 \text{ kg/cm}^2$ and rise in temperature $= 30^{\circ}\text{C}$. Assume 500 Kg/Km as resistance to track movement.
- Q4)** Enumerate the various factors which would keep in view while selecting a suitable site for an airport.
- Q5)** What is meant by a crossing? What are the essential requirements of a good crossing? Discuss various types of crossings in use on Indian Railways.
- Q6)** Explain the necessity of grade compensation at curves.

Section - C

(2 × 10 = 20)

- Q7)** Describe the working of “Absolute Block” system of signaling.
- Q8)** Draw a neat cross section of runway for an international airport having instrumental landing facilities. Show therein the various runway geometrics.
- Q9)** Draw a neat diagram of simple right-hand turnout and show its various component parts. Explain the working principle of the turnout.