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B.Tech. (Sem. - 5th)

TRANSPORTATION ENGINEERING - I

SUBJECT CODE : CE - 311

Paper ID : [A0617]

[Note : Please fill subject code and paper ID on OMR]

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 x 2 = 20)*

a) Give the classification of Urban Roads.

b) Distinguish between Ruling Gradient and Minimum Gradient.

c) What are the different types of camber?

d) Why superelevation is provided and what is rate of superelevation?

e) List the various components of pavement construction.

f) Distinguish between Design speed and Minimum speed.

g) What are the requirements of Highway lighting?

h) What are the requirements of alignment of roads?

i) Why signals are provided on the roads?

j) How parking demand is evaluated?

Section - B

(4 x 5 = 20)

Q2) Calculate the superelevation to be provided for a horizontal curve with a radius of 400m for a design speed of 100 kmph in plain terrain as per IRC practice. Comment on the results. What is the coefficient of lateral friction mobilized if superelevation is to be restricted to 0.07.

Q3) Explain the stepwise procedure for construction of Water Bound Mecadem.

Q4) Derive an expression for extrawidening on curves.

Q5) What are the various types of surveys and investigations required in connection with a highway project?

Q6) Explain the various types of pavement failures in urban areas.

Section - C

(2 x 10 = 20)

Q7) What is subsoil drainage and how it is provided? In which situations, pipe water drains are provided?

Q8) Explain the procedure for the construction of cement concrete pavements.

Q9) What are O-D surveys and how they are carried out?