JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2024

B.Tech-VI Semester (Civil)

COURSE CODE (CREDITS): 18B11CE511 MAX. MARKS: 25

COURSE NAME: Highway Engineering

COURSE INSTRUCTORS: Dr. Amardeep MAX. TIME: 1.5 Hours

Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

Q. 1. Calculate the Stopping Sight Distance for two-way traffic in a Single LaneRoad. The design speed of the Road is 60 kmph. Assume Reaction time of thedriver as 2.5 sec and Co-efficient of friction as 0.6. Brake efficiency is 50%. **[CO2]** (5)

Q. 2. The speed of overtaking and the overtaken vehicle is 80kmph and 65 kmph respectively on two-way traffic. The acceleration of the overtaking vehicle is 3.6 kmph. Calculate. (i) Safe overtaking sight distance. (ii) Minimum and desirable overtaking zone. **[CO2]** (5)

Q. 3. Design the rate of superelevation for a horizontal highway curve of radius 500m and speed 100kmph.for mixed traffic conditions. **[CO2]** (4)

Q. 4. Solve the following:- **[CO1]**

a) Minimum green time required for vehicular for any of the approach is ___seconds

b) Gradient on a highway is 1 in 20. Radius of the curve is 200 m. calculate grade compensation.

c) Intermediate sight distance is equal to ____times SSD

d) As per IRC the maximum superelevation that can be provided on hill road not bound by snow is ___

e) Define gradient and state any four types of gradients. (5X1 =5)

Q. 5. The width of a carriage way approaching an intersection is given as 15 m. The entry and exit width at the rotary is 10 m. The traffic approaching the intersection from the four sides is shown in the figure 4 below. Find the capacity of the rotary using the given data. **[CO5]** (6)