JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

B.Tech-Vth Semester (CE)

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

COURSE NAME: Highway Engineering

COURSE INSTRUCTORS: Dr. Amardeep   MAX. TIME: 1Hours 30 Minutes

Note: (a) All questions are compulsory.

      (b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	A vehicle is moving on a highway at a speed of 80 kmph. If the coefficient of friction between the road surface and the tyres is 0.35 and the reaction time of the driver is 2.5 sec, then the lag distance will be?	CO2	2
Q2	Bituminous pavement of width 7.0 m is to be provided for a state highway in a heavy rainfall region. What will be the rise of crown with respect to edges?	CO2	2
Q3	While driving the vehicle at a speed of 40 kmph in descending grade, the driver requires a braking distance equal to 1.5 times that required for stopping the vehicle when travelling the ascending grade. If the coefficient of friction is 0.35, then what will be the grade of the road?	CO2	3
Q4	A horizontal curve of radius 200 m is to be provided on a highway of width 7 m with design speed of 60 kmph. The length of the longest wheel base of vehicle expected in the road is 6.0 m. Calculate the extra widening required for pavement.	CO2	3
Q5	A vehicle is moving on a road of grade +4% at a speed of 20 m/s. Consider the coefficient of rolling friction as 0.46 and acceleration due to gravity as 10 m/s^2. On applying brakes to reach a speed of 10 m/s, calculate the required braking distance (in m, round off to nearest integer) along the horizontal distance.	CO2	3
Q6	Please make a list of different warrants for traffic control signal installation.	CO5	2
Q7	What are the different methods to design traffic signals? Describe IRC method in detail along with its different steps.	CO5	5
Q8	Specify the Relationship Between Speed, Travel Time, Volume, Density and Capacity with the help of suitable diagram.	CO1	2
Q9	PCU is supposed to be adopted in order to bring all the different type of vehicles on a single platform in order to performance evaluation of a specific highway section. Still, there are lot of factors which may affect the PCU, discuss.	CO1	3