JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-5th Semester (CE)

COURSE CODE (CREDITS): 18B11CE511(3)   MAX. MARKS: 25

COURSE NAME: Highway Engineering

COURSE INSTRUCTORS: Dr. Amardeep   MAX. TIME: 1:30 Hour

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	What will be the ruling minimum radius of horizontal curve of a National Highway in plain terrain for a ruling design speed of 100 km/h with superelevation e = 0.07 and coefficient of lateral friction f =0.15.	CO -2	03
Q2	A summit curve is formed by +3% and –2% grades. Length of curve = 300 m. Design speed = 80 km/h. Assume other data (if required). Check if the available Stopping Sight Distance (SSD) criterion is satisfied. (A) Satisfied, available sight = 170 m (B) Not satisfied, available sight = 170 m (C) Not satisfied, available sight = 250 m (D) Satisfied, available sight = 470 m	CO -2	05
Q3.	In the Marshall mix design, the specific gravities are: coarse aggregate = 2.60, fine aggregate = 2.70, filler = 2.65, bitumen = 1.01. Proportions by weight are: 55%, 35.8%, 3.7%, 5.5%. Compute the theoretical specific gravity of mix (Gt), rounded to 2 decimals.	CO -3	05
Q4.	Discuss in detail about the different stresses occurred in flexible pavement along with their specifications and fig.	CO -4	06
Q5.	A vertical summit curve is to be designed where two grades, +1/50 and −1/80 meet on a highway. The stopping sight distance and overtaking sight distance required are 180 m and 640 m respectively. But due to site conditions the length of vertical curve has to be restricted to a maximum value of 500 m if possible. Calculate the length of summit curve needed to fulfil the requirements of (a) Stopping sight distance (b) Overtaking sight distance or at least Intermediate sight distance and discuss the results.	CO -3	06
Q6	What will be the ruling minimum radius of horizontal curve of a National Highway in plain terrain for a ruling design speed of 100 km/h with superelevation e = 0.07 and coefficient of lateral friction f =0.15.	CO -2	03