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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-IVth Semester (CE)

COURSE CODE (CREDITS): 25B11CE413(3) MAX. MARKS: 15

COURSE NAME: Highway Engineering

COURSE INSTRUCTORS: Dr. Amardeep MAX. TIME: 1 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	a) Discuss in detail step by step about the Highway development in India? Please specify the role of each committee for the same in detail. b) Recommended Camber Values for different pavement types as per IRC	CO -1	03 02
Q2	A car is moving at 90 km/h on a downward gradient of 1 in 25. The perception–reaction time is 2.0 s and the coefficient of longitudinal friction is 0.30. Determine the minimum SSD required. (Take $g = 9.81\ m/s^2$)	CO -2	03
Q3.	A highway is designed for a speed of 65 kmph to carry mixed traffic, the superelevation is not to exceed 7% & coefficient of lateral friction is 0.15. Radius of horizontal curve is 125 m then which of the following statement is correct? a. Design speed of 65 kmph is allowed b. Maximum speed can be allowed only up to 30 kmph c. Maximum speed can be allowed only up to 50 kmph d. Speed up to 80 kmph can be allowed	CO -2	03
Q4.	(a) Derive the expression for **Stopping Sight Distance (SSD)** on a **descending gradient.** (b) Critically discuss how **driver perception–reaction time, pavement condition, and gradient** influence SSD. (c) Explain why SSD is considered a **controlling design parameter** in geometric design.	CO -2	04

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