

R18

Code No: 155DJ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, March - 2021

TRANSPORTATION ENGINEERING

(Civil Engineering)

Time: 3 Hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

1. Write in detail about the PPP schemes of Highway Development in India. [15]
2. Enumerate the factors governing the width of carriage way. State the IRC specifications for width of carriage way for various classes of roads? [15]
- 3.a) Explain summit and valley curves and the various cases when these are formed while two different gradients meet.
- b) The speeds of overtaking and overtaken vehicles are 80 and 60 Km/h respectively. If the acceleration of the overtaking vehicle is 2.5 Km/h per second, calculate the safe passing sight distance for:
 - i) One way traffic
 - ii) Two way traffic. Enumerate the various design factors controlling the vertical alignment of highways. [7+8]
4. Explain the direct method of conducting spot speed study with a neat sketch? Also write the advantages and disadvantages of this method. Discuss about the other methods of collecting data. [15]
5. What are the various parking parameters about which data is collected in a parking study? Define and explain them. Explain clearly the method of Parking Inventory Study on a road section. [15]
6. What are the desirable properties of bituminous mixes? What are the steps in bituminous mix design? Discuss briefly. [15]
- 7.a) A cement concrete pavement 15 cm thick and 7.5 meter width has a longitudinal joint along the centre line. Design the diameter, length and spacing of the tie bars if the allowable working stress in steel is 1800 kg/cm² in tension, allowable bond strength in concrete is 24.6 kg/cm² and coefficient of friction is 1.5. Assume unit weight of concrete as 2400 kg/m³.
- b) Discuss the conditions under which stresses in cement concrete pavements lead to most critical combinations. [8+7]
8. Mention the design steps for overlay thickness design using BBD data. [15]

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