

12. (a) What are the factors affecting geometric design? Explain.

Or

(b) The speed of overtaking and overtaken vehicles is 80 and 50 kmph respectively. On a two way traffic load, the acceleration of overtaking vehicles is 0.99 m/sec^2 . Calculate OSD, mention the minimum length of overtaking zone and draw the sketch of the overtaking zone with all details.

13. (a) (i) Design the pavement for construction of a new bypass with the following data : Two lane carriage way, Initial traffic in the year of completion of construction = 400 CVPD (sum of both directions), Traffic growth rate = 7.5%. Design life = 15 years, Vehicle damage factor based on axle load survey = 2.5 standard axle per commercial vehicle and Design CBR of subgrade soil = 4%.

(ii) What are the most important factor in the pavement design?

Or

(b) Explain the design of joints in rigid pavements.

14. (a) Explain the California Bearing Ratio Test.

Or

(b) What are the modern construction materials used for the construction of pavements? Explain their characteristics and usage in detail.

15. (a) Explain in detail the possible causes and remedial measures for joint failure.

Or

(b) Explain the methods employed for evaluation of pavements and explain the evaluation of pavement by Benkelman Beam method and deflection measurements.