

SIX SEMESTER B.TECH CIVIL ENGINEERING

Transportation Engineering II

Model Question Paper

Time : 3 Hours

MAX. MARKS: 100

PART – A (Answer all questions)

1. Enlist the requirements of a highway alignment.
2. Discuss the desirable properties of aggregates used for road construction.
3. What is meant by sight distance? Briefly explain importants of Sight Distance in geometric design of pavements.
4. Explain briefly ITS and its significance.
5. Differentiate between Runway and Taxiway.

(5x4 = 20)

PART – B

(Answe any one full question from each module)

Module - I

- 6.a) What are the different classification of roads in India (5)
- b) Discuss with neat sketch the various controlling factors of the alignment of highway. (15)

OR

7. a) Enlist the various types of bitumen and its quality tests (5)

b) Explain CBR test and its importance in design of flexible pavement. (15)

Module - II

8. a) what are the classification of transport technologies? (5)

b) Aligning a highway in a built up area it was necessary to provide a horizontal curve of radius – 400m. Design following geometric features.

- i) Super elevation
- ii) Extra widening of pavements.
- iii) Length of transition curve.
- iv) Shift.

(15)

Assume: Design speed 80kmph, pavement width 7.5m ,length of wheel base 6m.

OR

9. a) Briefly explain the surface and sub-surface drainage systems in pavements (10)

b) Design the rate of super elevation for a horizontal highway curve of radius 500 m and speed 80 kmph. (10)

Module – III

10. a) Explain the procedure of construction of WBM. (10)

(b) Differentiate between flexible pavement and rigid pavement. (10)

OR

11. a) What are different types of failure in flexible pavement. (10)

b) Determine the warping stress at interior edge and corner of a 25 cm thick cement concrete pavement with transverse points at 5m interval and longitudinal joints at 3.6 m intervals. The modules of subgrade reaction k is 6.9 kg/cm³. Assume Max.temperature differential during day to be 0.6 °C per cm slab thickness (for warping stress at interior and edge) and max temp. Differential of 0.4 °C per slab thickness during night (for warping stress at the corner).Additional data given. (10)

$$(e = 10 \times 10^{-6} \text{ per } ^\circ\text{C}, E = 3 \times 10^5 \text{ kg/cm}^2, \mu = 0.15, C_x = 0.88, C_y = 0.54)$$

Module – IV

12. (a) What are the factors to be considered in the geometric design of a runway. (10)

(b) An airport is proposed at an elevation of 400 m above mean sea level where the mean of maximum and mean of average daily temperatures of the hottest month are 44.8°C and 26.2°C respectively. The maximum elevation difference along the proposed profile of runway is 6.3 m. If the basic length of runway is 1260 m, determine the actual length of runway to be provided. (10)

OR

13. (a) Explain different air craft parking systems with sketches. Also mention merits and demerits of each system. (10)

(b)What are requirements of ideal taxi waylayout (10)
