

B.TECH
(SEM-V) THEORY EXAMINATION 2019-20
TRANSPORTATION ENGINEERING-1

Time: 3 Hours**Total Marks: 100****Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A**

- 1. Attempt all questions in brief. 2 x 10 = 20**
- a. Explain the different road patterns with neat sketch.
 - b. Explain super elevation.
 - c. Define overtaking zone.
 - d. Explain time mean speed.
 - e. Explain grade compensation.
 - f. Write down the classification of vertical curve.
 - g. Define intersection.
 - h. Define Practical Capacity.
 - i. Explain flash and fire point in bitumen.
 - j. Define Prime coat, tack coat, seal coat

SECTION B

- 2. Attempt any three of the following: 10x3=30**
- a. The area of Maharashtra is 3, 08,000 sq. km. The number of towns as per 1981 census is 276. The number of villages is 41,833. Calculate the length of various categories of roads.
 - b. Calculate the length of stooping sight distance for two way traffic in a single lane road. The design speed is 80 kmph. Coefficient of friction is 0.6. for sloping road with (i) Ascending slope of 2% (ii) Descending slope of 3%
 - c. A valley curve is formed by a descending grade of 1 in 25 meeting an ascending grade of 1 in 30. Design the length of valley curve o fulfils both comfort condition and head light sight distance requirements for a design speed of 80kmph. Take $C=0.6m/sec^3$.
 - d. Explain PCU, possible capacity and traffic density.
 - e. Classify different types of joints in CC pavement and mention the objects of each.

SECTION C

- 3. Attempt any one part of the following: 10x1=10**
- a. Describe the policies and objectives of third twenty year road development plan.
 - b. What are the recommendations of Jayakar committee Report?
- 4. Attempt any one part of the following: 10x1=10**
- a. A six lane divided carriageway has a curve 1000m long and a radius of 500 m. the safe stooping sight distance is 200m. Calculate the minimum set back distance from the inner edge of the road to the edge of a building to ensure safe visibility.
 - b. Explain the various functions of Transition curve.
- 5. Attempt any one part of the following: 10x1=10**
- a. Write short notes on (i) Thirtieth highest hourly volume (ii) Passenger car unit (iii) parking study
 - b. Enlist and explain briefly the various factors considered in the design of rotary intersection. Also write down the advantages and disadvantages of rotary.
- 6. Attempt any one part of the following: 10x1=10**
- a. Write down the various components of the flexible pavement and their functions.
 - b. Explain IRC method of rigid pavement design.
- 7. Attempt any one part of the following: 10x1=10**
- a. Explain bituminous bound macadam and asphaltic concrete.
 - b. Mention the specifications of materials and construction steps for water bound macadam.