Dec.-22-0180

CE-506 (Transportation Engineering-I)

B.Tech. 5th (CBCS)

Time : 3 Hours   **Max. Marks : 60**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt Four questions out of eight questions which is of 10 marks each. Question no. 9 is compulsory, which is of 20 marks.

1. Explain in detail about the conventional and modern methods for conducting engineering surveys for alignment of highways. (10)

OR

2. Give the relationship between the three characteristics of traffic flow in form of curves and mathematical equations. Give a detailed classification along with rough sketches of traffic signs whilst mentioning their respective purpose.   (5+5=10)

3. (i)   What is the significance of stopping sight distance and overtaking sight distance?

   (ii) The speed of overtaking and the overtaken vehicle is 80kmph and 65 kmph respectively on two-way traffic. The acceleration of the overtaking vehicle is 3.6 kmph per second. Calculate the Safe overtaking sight distance and the Minimum and desirable overtaking zone?   (5+5=10)

OR

4. Explain how following road elements are designed:

   (i)   Camber

   (ii) Road mechanical widening at curves   (5+5=10)

5. Explain the procedure of the design of a flexible pavement. Also, explain the factors that affect the design.   (10)

OR

6. Explain the difference in the structure and mechanical properties of flexible and rigid pavements. What is the mode of failure in rigid and flexible pavement?   (10)

7. What are the different types of overlays? Explain their design steps & uses.   (10)

OR

8. How will you evaluate the pavement roughness, abrasion resistance and its present serviceability index?   (10)

9. Write short notes on the following:

   (i)   Skid resistance

   (ii)   Lane distribution factor

   (iii) Strengthening of existing pavement

   (iv)   Use of fibers in highway construction

   (v)   Road margins   (5×4=20)