

Reg. No:

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Regular Examinations July-2021

TRANSPORTATION ENGINEERING

(Civil Engineering)

Time: 3 hours

Max. Marks: 60

PART-A

(Answer all the Questions 5 x 2 = 10 Marks)

- | | | | |
|----------|--|-----------|-----------|
| 1 | a Name any four highway cross-sectional elements. | L1 | 2M |
| | b What is the relationship between speed and Flow? | L1 | 2M |
| | c Draw a cross section of flexible pavement showing different layers. | L1 | 2M |
| | d What are the functions of sleepers? | L1 | 2M |
| | e Write about requirements of transition curve | L1 | 2M |

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

- | | | | |
|----------|---|-----------|------------|
| 2 | While aligning a highway in a built up area, it was necessary to provide a horizontal curve of radius 300 m for a design speed 65 KMPH length of wheel base-6m and pavement width 10m. Assume rate of introduction of super elevation as 1 in 100 and super elevation is provided by rotating about centre line. Design super elevation, extra widening of pavement and length of transition curve. | L3 | 10M |
|----------|---|-----------|------------|

OR

- | | | | |
|----------|--|-----------|------------|
| 3 | Explain the types of gradients with IRC recommendations. | L1 | 10M |
|----------|--|-----------|------------|

UNIT-II

- | | | | |
|----------|---|-----------|------------|
| 4 | Explain the significance of traffic studies. Briefly explain any four types of traffic studies. | L1 | 10M |
|----------|---|-----------|------------|

OR

- | | | | |
|----------|--|-----------|------------|
| 5 | Discuss about various Engineering measures that can help in reducing time accident rate. | L2 | 10M |
|----------|--|-----------|------------|

UNIT-III

- | | | | |
|----------|--|-----------|------------|
| 6 | Draw a sketch of flexible pavement cross section and show the component parts. Enumerate the Functions and importance of each component of the pavement. | L2 | 10M |
|----------|--|-----------|------------|

OR

- | | | | |
|----------|---|-----------|------------|
| 7 | What are the functions of tie bars and dowel bars in rigid pavements? What is the design principle. | L1 | 10M |
|----------|---|-----------|------------|

UNIT-IV

- 8 a Explain causes of creep. L1 6M
 b What are the functions of ballast? L1 4M

OR

- 9 a Discuss briefly about the functions of different components of permanent way. L2 5M
 b What are the advantages and disadvantages of steel sleepers? L1 5M

UNIT-V

- 10 a Calculate the maximum permissible speed on a curve of high speed for the following data on a B.G track. Degree of curve 1.2, amount of super elevation 8.0 cm, length of transition curve 125 m, maximum speed of the section likely sanction speed = 150 kmph. L3 5M
 b A 5° curve diverges from a 3° main curve in a reverse direction in the layout of a BG yard. If the speed on the branch line is restricted to 35 kmph, determine the restricted speed on main line. L3 5M

OR

- 11 a What are the advantages of automatic signaling in railways? L1 5M
 b What is grade compensation in railway track design? Why is it necessary to provide grade compensation? L1 5M

END