R16

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B. Tech III Year II Semester Supplementary Examinations March-2021
TRANSPORTATION ENGINEERING-I
(Civil engineering)

Time: 3 hours   Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

1 a What are the characteristics of road transport in comparison with other systems?   6M
   b Explain the classification of roads based on Nagpur road plan.   6M

OR

2 a What are obligatory points? How they influence highway alignment?   6M
   b Give the details of drawings to be prepared in a highway project.   6M

UNIT-II

3 a What is camber? Why camber is to be provided for a road surface? Explain. Give IRC specified values of camber for different types of road surfaces.   6M
   b Describe briefly about PIEV theory.   6M

OR

4 a Briefly explain factors influence the design of vertical curves.   6M
   b A summit curve is to be designed for a speed of 80 kmph so as to have an overtaking distance of 470 m. Calculate the length of the curve, considering an ascending gradient of 1 in 100 meets a descending gradient of 1 in 120.   6M

UNIT-III

5 a Define the following:
      i) Space-mean speed ii) Time-mean speed iii) Passenger car unit (PCU)   7M
   b What are the objectives of speed studies? What are the methods of presentation of speed data?   5M

OR

6 a Explain the design procedure of Traffic signals by Webster method.   6M
   b With neat sketches explain various grade separated intersections and direction traffic flow.   6M

UNIT-IV

7 a Explain the desirable properties of aggregates to be used in different types of pavement construction.   6M
   b List different tests to be conducted on road aggregates and mention their advantages and limitations.   6M

OR

8 Describe briefly step by step procedure of Marshall method of bituminous mix design.   12M

UNIT-V

9 a Draw a neat sketch of flexible pavement cross section and show the component parts. Enumerate the Functions and importance of each component of the pavement.   7M
   b What factors affect the design of flexible pavements?   5M

OR

10 A circular load of radius 15 cm with uniform contact pressure of 7.0 kg/cm^2 is applied on the Surface of a homogeneous elastic mass. Determine the vertical stress under the center of the load at A depth of 45 cm from the surface.   12M

END