D

1200CET332052402

Pages: 3

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (S, FE) Examination December 2024 (2019 Scheme)

Course Code: CET332

Course Name: TRAFFIC ENGINEERING AND MANAGEMENT

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1 The speeds of 25 cars are given. 10 cars are noted to travel at 35 km/h, 8 cars at 40 km/h, 2 cars at 50 km/h, 5 cars at 45 km/h. Assume that each car is travelling at constant speed, compute V_t and V_s. (3)

2 Describe space headway and time headway. (3)

3 Explain the scope of traffic management measures. (3)

4 Explain the general rules regarding parking regulations. (3)

5 Define PCU. List any two factors that affect PCU values. (3)

6 Describe adjustment factor in capacity estimation. (3)

7 Discuss warning signs with a few examples. (3)

8 Explain the advantages and disadvantages of traffic signals. (3)

9 Explain any six measures to prevent accidents. (3)

10 Discuss the causes of accidents. (3)

PART B

Answer one full question from each module, each carries 14 marks.

Module I

11 a) Explain the fundamental diagrams of traffic flow. (8)

b) Describe and illustrate the various conflicts at an un-channelized four-legged intersection. (6)

OR

12 a) For the following data on speed and density, determine the parameters of the Greenshield's model. Also find the maximum flow and density corresponding to a speed of 30 km/hr. (8)

K	171	129	20	70
V	5	15	40	25

b) Define time mean speed and space mean speed. Derive the relation between the two. (6)

Module II

13 a) Describe the following traffic management measures: (8)
a) Tidal flow operation b) closing side streets

b) Discuss the need for speed regulation and the various methods of enforcing speed regulations. (6)

OR

14 a) Define any four criteria that govern the speed limit decisions in rural areas. (8)

b) Enumerate and explain the various particulars covered in the section 'construction of vehicles' in Motor Vehicles Act. (6)

Module III

15 a) Define level of service of a highway facility. Explain the different factors that affect level of service. (8)

b) Explain the adjustment factors mentioned in Indo HCM (2017) that are to be considered in the capacity estimation of urban roads. (6)

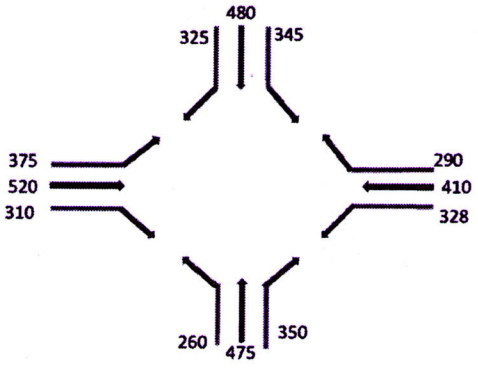
OR

16 a) Discuss the base conditions for capacity estimation of a two-lane interurban road as per Indo HCM. (8)

b) Explain the capacity & LoS calculation procedure for two-lane, intermediate lane and single lane as per Indo-HCM (2017). (6)

Module IV

17 a) Traffic flow in an urban section at the intersection of two highways in the design year are given below: The highways at present intersect at right angles and have a carriageway width of 15 m. Design a rotary intersection making suitable assumptions. (8)



b) Compare fixed-time and vehicle-actuated traffic signals. (6)

OR

18 a) The average normal flow of traffic on crossroads A and B during design period are 450 and 270 PCU per hour respectively. The saturation flow values on these roads are estimated as 1800 and 1500 PCU per hour respectively. The all-red time required for pedestrian crossing is 16 seconds. Design a two-phase traffic signal by Webster's method. (8)

b) Discuss the advantages and disadvantages of rotary intersections. (6)

Module V

19 a) Describe collision and condition diagrams? Explain with neat sketches. (8)

b) Explain the importance of accident studies. (6)

OR

20 a) Explain road safety audit along with the steps involved. (8)

b) Explain the influence of driver on the occurrence of accidents. (6)

****