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18CV652

Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Traffic Engineering

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. List the different road users characteristics and explain the concept of PIEV theory. (10 Marks)
- b. With a flow diagram, explain sustainable approach related to transport planning. (10 Marks)

OR

- 2 a. Discuss various urban traffic problems in India. List some remedial measures also. (10 Marks)
- b. A vehicle of mass 1800kg has to accelerate at 2M/sec^2 from a speed of 12kmph to 22kmph in the first gear. The gradient is +1.2% and the coefficient of rolling resistance are 0.025. The frontal area and co-efficient of air resistance are 2.38m^2 and 0.37 respectively. The transmission and rear gear ratio are 2.85:1 and 3.71:1 respectively. The radius and deformation factor of tyres are 0.35 and 0.945m respectively. Determine the engine horse power and speed of engine if transmission efficiency is 0.88. (10 Marks)

Module-2

- 3 a. Explain briefly speed and delay study by moving car observer method. List the advantages of this method. (10 Marks)
- b. Explain the preventive measure to reduce accidents. (10 Marks)

OR

- 4 a. Mention the various applications of O and D study. Explain road side interview method of collecting O and D data. (10 Marks)
- b. Spot speed studies were carried out on a certain stretch of a road highway and the consolidated data collected are given below:

Speed range (kmph)	Number of vehicles observed	Speed range (kmph)	Number of vehicles observed
0 to 10	12	50 to 60	255
10 to 20	18	60 to 70	119
20 to 30	68	70 to 80	43
30 to 40	89	80 to 90	33
40 to 50	204	90 to 100	09

Determine:

- i) Upper and lower values of speed limit for regulation
- ii) Design speed for checking the geometric design element of the highway. (10 Marks)

Module-3

- 5 a. List the advantages and disadvantages of traffic signals. (10 Marks)
- b. Discuss briefly the different types of road Markings. (10 Marks)

OR

- 6 a. Mention various classification of traffic signs. Explain any two of them with neat sketches. (10 Marks)
- b. The average normal flow on cross roads 'A' and 'B' during design period are 400PCU and 250PCU per hour. The saturation flows are 1250PCU and 1000PCU per hour respectively. The all red time required for pedestrian crossing is 12 seconds. Design a two phase signal by Webster's method. (10 Marks)

Module-4

- 7 a. Explain various design factors of road lighting. (10 Marks)
- b. Explain in detail the causes for road accidents. (10 Marks)

OR

- 8 a. Explain the measures to control traffic noise. (10 Marks)
- b. Write a short notes on:
- i) Promotion of non motorized transport
 - ii) Measures for controlling air pollution. (10 Marks)

Module-5

- 9 a. List the techniques commonly adopted in Travel Demand Management (TDM). Explain any one in detail. (10 Marks)
- b. What do you mean by "Area traffic control"? Mention its objectives, indicating the types of methods adopted in traffic control. (10 Marks)

OR

- 10 a. Explain the necessity and applications of Intelligent Transport System (ITS). (10 Marks)
- b. Discuss the advantages and disadvantages of one way streets. (10 Marks)

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