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10CV667

Sixth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Traffic Engineering

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. What are the objects and scope of traffic engineering? Explain briefly. **(10 Marks)**

b. Briefly explain different vehicular characteristics which affect the road design. **(10 Marks)**

2 a. List and explain the various resistances, which acts against the motion of vehicle. **(10 Marks)**

b. Enumerate the different method of carrying out traffic volume studies. Indicate the principle of each. **(10 Marks)**

3 a. With usual notations. Explain the power performance of vehicle. **(10 Marks)**

b. Explain the different forms of presentation of traffic volume data. **(10 Marks)**

4 a. What are the uses of origin and destination survey? How the results are presented. **(10 Marks)**

b. A vehicle of weight 2 tonnes skids through a distance equal to 40m before colliding with another parked vehicle of weight 1 tonne. After collision both the vehicle skids through a distance equal to 12m before stopping.
Calculate the initial speed of moving vehicle. Assume coefficient of friction as 0.5. **(10 Marks)**

PART – B

5 a. Show the linear relationship between speed and concentration. **(10 Marks)**

b. The speed and concentration of vehicles in a traffic stream were observed and the following data were obtained:

Concentration (veh/km)	5	10	15	20	25	30	35	40	45	50
Speed (kmph)	72	68	61	52	47	39	32	27	20	13

Find the regression equation for determining the speed from concentration. **(10 Marks)**

6 a. A toll booth at the entrance to a bridge can handle 120 Veh/hour, the time to process a vehicle being exponentially distributed. The flow is 90 Veh/hour with a Poisson arrival pattern. Determine :
i) The average number of vehicle in the system.
ii) The length of the queue
iii) The average time spent by the vehicle in the system
iv) The average time spent by the vehicle in the queue. **(10 Marks)**

b. Briefly explain the steps involved in simulation model. **(10 Marks)**

7 a. The average normal flow of traffic on cross roads A and B during a design period are 400 and 250 per/hr the saturation of flow values on these roads are estimated as 1250 and 1000 per/hr respectively. The all red time required for pedestrian crossing is 12 seconds. Design two phase traffic signal by Webster's method. **(10 Marks)**

b. What are the advantages and disadvantages of traffic signals? **(10 Marks)**

8 Write a note on :
a. Traffic rotary elements b. Street lighting
c. Road side furniture d. Intelligent Transport system. **(20 Marks)**

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