Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020
Traffic Engineering

Time: 3 hrs.   Max. Marks:100

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

PART – A

1 a. Explain briefly the various objectives of traffic engineering and how it is achieved. **(06 Marks)**

   b. List and explain the various static and dynamic characteristics of vehicle that affect the design of various traffic facilities. **(08 Marks)**

   c. Explain the meaning of driver reaction time and how is important in SSD and OSD calculations. Write the relevant values. **(06 Marks)**

2 a. Explain how the power requirement is calculated for overcoming various resistances for motion. **(08 Marks)**

   b. List the various studies that are normally carried out in traffic engineering and briefly explain the importance of each. **(06 Marks)**

   c. With relevant sketch briefly explain the relationship between speed density and volume density. **(06 Marks)**

3 a. Explain the meaning of pcu and its importance in traffic engineering in various analysis with a few values of recommended by IRC for mid block section. **(06 Marks)**

   b. On an highway the mean free speed was measured as 80Kmph and the spacing between vehicles was 7.0m. Determine the capacity by flow. **(06 Marks)**

   c. Two cross roads A and B have an average normal flow of traffic as 400 and 250 pcu/hr, the saturation flow for both the roads are 1250 and 1000 pcu/hr respectively. The all red time for pedestrian crossing is 12 sec. design 2 phase traffic signal with pedestrian crossing by Webster's method. **(08 Marks)**

4 a. Define space mean speed and time mean speed. Write the relationship between both. How both are measured in the field. **(06 Marks)**

   b. Explain the meaning of correlation and regression of applied to traffic engineering. Explain how it is useful in traffic problem analysis. **(06 Marks)**

   c. On an highway the number of vehicles arriving in 10seconds interval was counted be the as follows:

No. of vehicles in 10 seconds interval	0	1	2	3	4	5	6	7
Frequency	11	28	30	18	8	4	1	0

   Find the mean rate of vehicle arrivals and using Poisson distribution compare the observed frequency with the theoretical frequency find: i) Arrival is random. **(08 Marks)**

PART – B

5 a. What are road marking? Briefly explain their classification. **(06 Marks)**

   b. Explain the importance of lighting for highways. List the various factors on which height visibility depends. Briefly explain the design factors. **(08 Marks)**

   c. What is the meaning of traffic forecast? Why it is required and explains how it is done in practice. **(06 Marks)**

6 a. What are one-way roads? What are their advantages and disadvantages? Draw an relevant sign to signify it. **(10 Marks)**

   b. Explain the importance of accident studies. Briefly explain the various causes of accidents and indicate the remedial measures. **(10 Marks)**

7 a. Explain the meaning of ITS and why it is essential in the present context. Explain a few of its applications in both traffic and transportation engineering. **(10 Marks)**

   b. Classify the various traffic signal and explain the importance of each type with relevant sketches. Write a few of its specification as per IRC. **(10 Marks)**

8   Write short note on the following :
   a. Specification of chi square test and its applications.
   b. Advantages of traffic rotary
   c. On street and off street parking
   d. Application of simulation in traffic studies. **(20 Marks)**

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