

PART – B

- 5 a. Form Greenshield's theory derive the relationship between speed, flow and density. (06 Marks)
- b. The off-peak traffic flow arriving at random at toll booth facility is 90veh/hr and the peak flow is 180 veh/hr. The service rate, exponentially distributed at the booth is 3.5 per minute. What is the average number of customers in the queue for each flow? (06 Marks)
- c. The speed and concentration of vehicles in a traffic stream were observed and the following data were obtained. Find the regression equation for determining the speed from concentration.

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

(08 Marks)

- 6 a. Write a short note on :
i. Traffic forecasting
ii. SIMULATION techniques (10 Marks)
- b. The data given below shows the occupancy of parking lot consisting of 50 spaces. The count was taken as 15 minute interval during the 4 hours duration on 6 week days. Find by inspection whether the number of vacant spaces during any count follows a Poisson distribution.

Occupancy of parking spaces	50	49	48	47	46	45	44	43	42	41	≤ 40
Frequency	6	15	21	20	15	10	5	2	1	1	0

(10 Marks)

- 7 a. With the help of neat sketch, explain elements of a traffic rotary. (06 Marks)
- b. Mention different types of traffic signal system. Explain any one of them. (06 Marks)
- c. The average normal flow of traffic on cross roads A and B during design period are 400 and 250 PCU/hr, the saturation flow values on these roads are estimated as 1250 and 1000 PCU/hr respectively. The all-red time required for pedestrian crossing is 12 seconds. Design two phase traffic signal by Webster's method. (08 Marks)

- 8 Write short notes on the following :

- a. ITS
b. MOVING CAR observer method
c. Mandatory signs
d. Street lighting.

(20 Marks)

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