



- Notes :
1. All question carry equal marks.
 2. Answer **any five** questions.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.
 5. Illustrate your answer necessary with the help of neat sketches.
 6. Use of pen Blue/Black ink/refill only for writing the answer book.

1. Attempt any two.

- a) Explain the terms. 8
 - i) PCU
 - ii) AADT
- b) Explain the various road users characteristics and state how it affects driving condition. 8
- c) Explain, how the speed and delay studies are carried out. What are the various uses of it. 8

2. a) Explain O – D study. What are the various applications of O – D studies: 8
- b) The following table summarizes the field data collected through spot speed study 8

| Speed class kmph | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|--------|
| No. of vehicles observed | 0 | 12 | 34 | 46 | 60 | 38 | 26 | 15 |

Determine modal speed, median speed, speed limit for traffic regulations and speed to be used in geometric design.

3. Attempt any two.

- a) What are the various types of traffic markings? State the uses of each. 8
- b) Explain the detrimental effect of traffic on environment. 8
- c) The average arrival rate of vehicles at a stop controlled approach is 720 vehicles per hour. Assuming that arrival of vehicles is Poisson distributed, estimate the probabilities of having 0, 1, 2, 3, 4, 5 or more vehicles arriving over a 10 sec. intervals. 8

4. a) Explain half cloverleaf interchange with neat sketch and show movement of traffic by arrow mark 8

- b) State the objectives of coordination of signals. Explain offset and time distance diagram w.r.to. coordination of signals. 8
5. Attempt any two. 8
- a) Explain "Design hourly traffic volume" 8
- b) State the advantages and disadvantages of fixed time signal and actuated signal. 8
- c) Explain the principles of travel forecasting. 8
6. a) Explain the factors on which capacity of signalized intersection depends. 8
- b) Explain in brief. 8
- i) Critical hour concept
- ii) Highway capacity.
