

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SIXTH SEMESTER B.TECH DEGREE EXAMINATION (R), MAY 2023

CIVIL ENGINEERING

(2020 SCHEME)

Course Code : 20CET332

Course Name: Traffic Engineering and Management

Max. Marks : 100

Duration: 3 Hours

PART A

(Answer all questions. Each question carries 3 marks)

1. Differentiate spot speed, running speed and journey speed.
2. What is desire line diagram? Mention any one practical application of it.
3. What is the need for traffic regulation?
4. What are the advantages of providing exclusive bus lanes?
5. Differentiate basic capacity and practical capacity.
6. List the factors affecting capacity and LOS.
7. What are the advantages of grade separated intersections?
8. Differentiate pre timed and traffic actuated signal.
9. Explain collision diagram with its significance in accident studies.
10. Briefly explain three measures taken for pedestrian safety.

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. a) Using basic stream flow diagram, explain speed- density, speed- flow and flow density relationship. (7)
- b) Explain Greenshields model. What are its advantages and disadvantages? (7)

OR

12. a) With the help of basic stream flow diagram, explain speed- density, speed- flow and flow density relationships. (7)
- b) Explain single regime speed - density models (7)

MODULE II

13. Explain the aspects covered under regulation of vehicles in the motor vehicles act. (14)

OR

14. a) Explain the need and types of parking regulations normally imposed on parking. Where are the locations where parking is restricted? (7)
- b) Analyze the traffic management measures that can be implemented to reduce the imbalance in directional distribution of traffic during peak hours. (7)

MODULE III

15. a) Explain different types of LOS as per HCM. (7)
- b) Explain the procedure mentioned in Indo HCM (2017) for the determination of base capacity and level of service of two lane two way inter-urban roads. (7)

OR

16. a) What is PCU? Explain the importance of PCU in heterogenous traffic condition. (7)
- b) Explain LOS analysis for two lane interurban roads. (7)

MODULE IV

17. a) A fixed time two phase signal is to be provided at an intersection having four arms. The design hour traffic flow and saturation flow are (8)

	North	South	East	West
Design hour flow(pcu/hr)	500	500	350	250
Saturation flow (pcu/hr)	1500	1200	1200	1250

Calculate the optimum cycle length based on Webster's equation and find the corresponding green times. Total loss per phase is 4 seconds and yellow interval is 2seconds. Sketch the timing diagram for each phase.

- b) Explain the factors to be considered in rotary intersection design. (6)

OR

18. a) List different types of road markings and explain any six. (7)
- b) With a neat figure explain the traffic flow in a grade separated 4-leg interchange. (7)

MODULE V

19. a) Analyze the different parameters that causes road accidents. (8)
- b) Briefly explain various stages of road safety audit. (6)

OR

20. a) Explain any three statistical methods for analysis of accident data. (6)
- b) Analyze the road safety situation of unban and rural roads in India. (8)
