A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 59105

B.E./B.Tech. DEGREE EXAMINATION, NOV 2018

Elective

Civil Engineering

15UCE905-Traffic Engineering and Management

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The instantaneous speed of a vehicle at a specified location is called as CO1- R

   (a) Spot speed (b) Journey speed (c) Running speed (d) Mean speed

2. _____is the maximum number of passenger cars that can pass a given point on a lane during one hour under nearly ideal roadway and traffic condition which can possibly be attained. CO1- R

   (a) Possible capacity (b) Basic capacity

   (c) Theoretical capacity (d) Practical capacity

3. The type of signal where green period varies and are related to actual demand made by traffic are known as _____signal. CO2- R

   (a) Fixed (b) Vehicle actuated

   (c) Optimum (d) Semi vehicle actuated

4. Saturation flow is increased by _____ percentage for every 1 % of down hill gradient CO2- R

   (a) 3 (b) 2 (c) 1 (d) 4

5. Weaving traffic is a CO3-R

   (a) Combination of merging & diverging traffic (b) Straight traffic

   (c) Merging traffic (d) None of the above

6. Technique of predicting the values of one variable from measurement of other is called as CO3- R

(a) Simulation (b)Regression analysis

(c) Chi square (d) None of the above

7. A schematic representation of all the accidents occurring at a particular location is known as CO4- R

(a) Condition diagram (b) Collision diagram

(c) Accident reort (d) Accident site plan

8. Three Es of road safety program are CO4- R

(a)Evaluation, Engineering, Enforcement (b) Evaluation, Engineering, Education

(c) Education, Engineering, Enforcement (d) None of the above

9. _____ is taken as standard vehicle for determination of PCU value CO5- R

(a) Two wheeler (b) Car (c) Truck (d) Trailer

10. Highway capacity of a traffic lane is the ability of the road way to allow _____ traffic flow. CO5- R

(a) Maximum (b) Minimum (c) Moderate (d) Average

PART – B (5 x 2= 10 Marks)

11. State any two advantages of simulation technique in traffic engineering. CO1 R

12. What is meant by optimum cycle time? CO2 R

13. State the draw backs of roundabout. CO3 R

14. List the components of road user cost. CO4 R

15. List the factors that affect capacity. CO5 R

PART – C (5 x 16= 80 Marks)

16. (a) Spot speed studies were carried out at a certain stretch of a highway with mixed traffic flow. Determine the upper and lower values or speed limits for installing regulation sign at this road stretch and the design speed for checking geometric speed. The consolidated data collected are given below — CO1- App — (16)

Speed range kmph	No. of vehicles observed	Speed range kmph	No. of vehicles observed
0 to 10	12	50 to 60	255
10 to 20	18	60 to 70	119
20 to 30	68	70 to 80	43
30 to 40	89	80 to 90	33
40 to 50	204	90 to 100	9

Or

(b) (i) Explain the car following theory — CO1- U — (8)

(ii) Explain the relationship between flow and density — CO1- U — (8)

17. (a) Compare the various types of coordinated signal clearly indicating advantages and disadvantages of each system — CO2- U — (16)

Or

(b) 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 for pedestrian crossing is 12 secs. Design two phase signal with pedestrian crossing by Webster method. — CO2- App — (16)

18. (a) (i) State the need for sampling and list the various types of samples. — CO3- U — (8)

(ii) List the applications of significance testing for traffic engineering problems. — CO3- U — (8)

Or

(b) Traffic flow in an urban section at the intersection of two highways in the design year is given below. — CO3-App — (16)

Approach	Left turning	Straight ahead	Right turning
	Vehicles in PCU/hr	Vehicles in PCU/hr	Vehicles in PCU/hr
N	415	543	350
E	408	450	402
S	549	350	424
W	450	423	493

The highways at present intersect at right angles and have a carriageway width of 15m. Design the rotary intersection making suitable assumptions.

19. (a) List the various causes of accidents and explain the various measures that can be taken to reduce accidents. CO4- U (16)

Or

(b) Explain in detail accident reporting and recording procedure CO4- U (16)

20. (a) Explain the various traffic management systems. CO5- U (16)

Or

(b) Explain with neat sketch the various levels of service and factors considered in evaluation of level of service. CO5- U (16)