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Question Paper Code: 31912

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2016

Elective

Civil Engineering

01UCE911 – TRAFFIC ENGINEERING AND MANAGEMENT

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. List the human factors governing road user behaviour.
2. What is minimum turning radius?
3. Differentiate between time-mean speed and space-mean speed.
4. Define traffic volume.
5. Define cycle length.
6. Draw a typical Rotary intersection and mark its salient features.
7. State the phenomenon of skidding.
8. List the elements of weather having effect on road accidents.
9. List the disadvantages of one way street system.
10. Mention the advantages of providing exclusive bus bays.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain in detail about the power performance of vehicles relating resistance to motion along with its equations? (16)

Or

(b) A passenger car weighing 2.5 tonnes is required to accelerate at a rate of 5 m/sec^2 in the first gear from a speed of 20 kmph. The gradient is +0.75 percentage and the road has a black topped surface. The frontal projection area of the car is 2.5 m^2 . The car tyre has a radius of 0.4 m. The rear axle gear ratio is 3.92:1 and the first gear ratio is 2.86:1 . Calculate the engine horsepower needed and the speed of the engine. Make suitable assumptions. (16)

12. (a) Explain briefly about the origin and destination survey along with its significance? (16)

Or

(b) Define “level of services” and explain in brief various “level of services” as per Indian road congress (IRC). (16)

13. (a) Explain the various types of road markings commonly used with neat sketches? (16)

Or

(b) A traffic signal is to be installed at an intersection where two six lane divided roads intersect at right angles. Design the phasing pattern and green time for each phase and the delay for one phase. The peak hour traffic flow is observed as follows: (16)

Name of the arm feeding traffic to the intersection	Traffic flow in PCU's per hour		
	Left	Straight	Right
North	360	587	290
East	324	608	320
South	365	595	280
West	380	636	345

14. (a) Explain how failure of human aspects leads to road accidents. (16)

Or

(b) Write in detail about the causes of air and noise pollution due to vehicles on road and the methods to reduce it. (16)

15. (a) Write a brief note on :

(i) Staggering of working hours (8)

(ii) Methods of road pricing (8)

Or

(b) Explain in detail the various transport demand management techniques? (16)