



PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 30

Max Time: 55 Mins

Weightage: 15 %

Set A

TEST 2

II Semester 2016-2017

Course: **CE A 206 Highway Engineering**

19 April 2017

Instructions:

- i. Write legibly
- ii. Scientific and non-programmable calculators are permitted

Part A

(5 Q x 2 M= 10 Marks)

1. What is called PCU and give PCU values for bicycle, car, large bullock cart and bus?
2. What do you mean by Thirtieth highest hourly volume?
3. Explain time and space headway.
4. What is called lost time in signal design?
5. List the types of conflicts and what is number of conflicts for the following category of cross roads.
i) both two-lane and two way traffic, ii) two lane and four lane with two way traffic in both.

Part B

(2 Q x 5 M= 10 Marks)

6. In Indira nagar there is a cross roads (road A and B) which creates traffic congestion. Design two phase signal system by adopting Webster's method to reduce traffic congestion at the intersection. Average normal traffic in road A and road B is having 450 and 200 pcu/hr and saturation flow traffic flow for these roads are 1400 and 800 pcu/hr. The all-red time required for pedestrian crossing is 12 secs.
7. Explain briefly traffic signs with diagram of at least three signs in each categories.

Part C

(1 Q x 10 M= 10 Marks)

8. Explain briefly
 - i) Origin and destination studies.
 - ii) Speed studies.



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22 March 2017

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Part A

(5 Q x 2 M= 10 Marks)

1. What is maximum and minimum superelevation as per IRC?
2. What are the categories allowed in gradients?
3. Name the various tests which is to be done with stone aggregate.
4. What do you meant by off tracking?
5. Define curve resistance.

Part B

(2 Q x 5 M= 10 Marks)

6. A vertical summit curve is formed at the intersection of two gradients, 1 in 25 (ascending) and 1 in 25(descending). Design the length of summit curve to provide a SSD and ISD for a design speed of 80kmph. Assume any other data as per IRC.
7. How do we determine toughness of stone aggregate? Explain briefly.

Part C

(1 Q x 10 M= 10 Marks)

8. While aligning a highway in built up area it was necessary to provide a horizontal circular curve of radius 325 meter, Design the following geometric features. Design speed = 65Kmph, Pavement width = 10.5 m
 - a) Superelevation (final rise of outer edge with respect to inner edge)
 - b) Extra widening of pavement
 - c) Length of transition curve



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TEST 1

II Semester 2016-2017

Course: CE A 206 Highway Engineering

22 February 2017

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Part A

(6 Q x 2 M= 12 Marks)

1. Name the effects caused by improper alignment.
2. Write short note on skidding and slipping.
3. Classify the urban roads.
4. Define building line.
5. Write short note on shoulders of the roads.
6. Expand the following abbreviations.
i) MORTH, ii) CRRI, iii) CRF, iv) PIEV

Part B

(2 Q x 5 M= 10 Marks)

7. Describe briefly about first 20-years road development plan.
8. Find minimum sight distance to avoid head-on collision of two cars approaching in opposite direction at equal speed of 90 kmph. The road is having uniform gradient of 4 in 100 throughout its length. Assume remaining parameters as per IRC recommendations.

Part C

(1 Q x 8 M= 8 Marks)

9. The speed of overtaking vehicles is 96 kmph. On a one way traffic road. If the acceleration of overtaking vehicle is 2.5 kmph/sec. Assume remaining parameters as per IRC recommendations. Calculate the safe overtaking sight distance (OSD) and Sketch the overtaking zone.