

NOTE: THIS PAGE HAS BEEN VERIFIED BY THE AUTHOR TO BE CORRECT.

## CLASS TEST 1

## SECOND YEAR CIVIL ENGINEERING

Max. Marks: 15

- Q.1 – Explain briefly various factors controlling the alignment of roads.** (03)

- Q.2** – List the various surveys conducted, various drawings and reports to be prepared for a highway project. (02)

- Q.3 – Draw typical cross sections of National Highway in embankment and cutting. (03).**

- Q.4** – Define stopping Sight distance. Calculate stopping sight distance on a highway at a descending gradient of 2% for a speed of 80 kmph. Assume other data as per IRC recommendations. (03)

OR

OR

State the necessity of extra widening on horizontal curves on roadways. Calculate the extra widening required for a pavement of width 7 m on a horizontal curve of radius 250 m. The longest wheel base of vehicle expected on road is 7 m and design speed is 70 kmph.

- Q.5** – Explain briefly with figures the following terms, their necessity, and types. Also state their standard values as per IRC recommendations.
- i) Camber  
ii) Gradient
- (04).

**CIVIL ENGINEERING DEPARTMENT**  
**SECOND YEAR CIVIL ENGINEERING 2016-17**  
**CLASS TEST I – TRANSPORTATION ENGINEERING CEU402**

Time – 1 Hour

Max. Marks: 15

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- Q. 1** List classification of roads based on different criteria. Explain in brief the classification of roads based on third road development plan. (2)
- Q2** Draw a neat sketch showing a typical cross section of a National Highway in embankment. Indicate all the important dimensions. (2)
- Q3** -Explain in brief the various drawings and reports to be prepared for a road project. (2)
- Q4** - Explain the term 'Camber'. State the objects of providing a camber. What are the different types of cambers provided to a road surface? Discuss the factors on which the amount of camber to be provided depends. Also specify the recommended ranges of camber for different types of pavement surfaces. (3)
- OR**
- Explain with sketches the following terms. Also state the equations to determine them.
- a) Stopping sight distance      b) Super elevation (3)

(P.T.O.)



**Q.5** -List the various tests on road aggregates. Explain in brief the aggregate crushing value test. (3)

**Q.6**- Calculate the extra widening required for a national highway pavement of width 7.0 m on a horizontal curve of radius 240 m. Assume suitable data. (3)

**OR**

An ascending gradient of 1 in 100 meets a descending gradient of 1 in 120. A summit curve is to be designed for a speed of 70 kmph so as to have an overtaking sight distance of 470 m. Calculate the length of summit curve. (3)

**CIVIL ENGINEERING DEPARTMENT**  
**SECOND YEAR CIVIL ENGINEERING 2017-18**  
**CLASS TEST I – TRANSPORTATION ENGINEERING CEU402**

Time – 1 Hour

Max. Marks: 15

**Q. 1** Classify roads based on location and function. Explain each in brief.

(3) ✓

**Q2** Explain with figures, different factors controlling highway alignment.

(3) ✓

**Q3 -3** Give stepwise procedure for design of super elevation as per practical consideration.

Also give maximum and minimum values of super elevation recommended by IRC (3) ✓

**OR**

Calculate stopping sight distance on a highway at a ascending gradient of 3% for a design speed of 65 kmph. Total reaction time is 2.5 sec and coefficient of friction is 0.36.

**Q4 - .** Draw figure showing typical cross section of highway in cutting and filling.

(3)

**Q 5.** Explain method of introducing extra widening in the field with the help of figures. (2)

**OR**

Find grade compensation and compensated grade at the curve if a hill road with a ruling gradient of 5 % and a horizontal curve of 70 m is encountered.

**Q 6.** List the various stages in new highway project.

(1)

Route selection, find  
→ Material design  
→ Construction  
for completion