

# CBCS SCHEME

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## Sixth Semester B.E. Degree Examination, Jan./Feb. 2021 Highway Engineering

Time: 3 hrs.

Max. Marks: 80

**Note: Answer any FIVE full questions, choosing ONE full question from each module.**

### Module-1

- 1 a. What is the importance of transportation? What are the characteristics of road transport? (08 Marks)  
b. Explain about the Road development plans in India. (08 Marks)

**OR**

- 2 a. Explain about classification of roads on different criterias. (08 Marks)  
b. Illustrate about National Highway Development Plan (NHDP) in India. (08 Marks)

### Module-2

- 3 a. Explain the factors controlling alignment of a highway? (08 Marks)  
b. Explain in detail about the surveys carried out for finalizing an alignment. (08 Marks)

**OR**

- 4 a. Define Sight Distance. What are the conditions for sight distance? (08 Marks)  
b. Calculate the sight distance required to avoid a head-on-collision of two cars approaching from the opposite directions at 90Kmph and 60Kmph. Assume a reaction time of 2.5Sec, coefficient of friction of 0.7 and a break efficiency of 50% in each case? (08 Marks)

### Module-3

- 5 a. Explain about Highway Research Board (HRB) classification of soils. (08 Marks)  
b. What are the desirable properties of road aggregates? Illustrate about different tests conducted for road tests. (08 Marks)

**OR**

- 6 a. Explain about different tests conducted for Bituminous material and their objectives. (08 Marks)  
b. What are the functions of different component layers of a flexible pavement? (08 Marks)

### Module-4

- 7 a. List different properties of Bituminous mixes used in flexible pavement construction. (08 Marks)  
b. Explain the design procedure of soil aggregate mixes by Rothfuch's method. (08 Marks)

**OR**

- 8 a. Explain the construction procedure for granular WBM courses. (08 Marks)  
b. What are the steps involved in construction of CC Roads? Explain in details. (08 Marks)

### Module-5

- 9 a. What is the Significance of highway drainage system? Also explain the requirements of highway drainage system. (08 Marks)  
b. Explain about different cross drainage works and their importance. (08 Marks)

**OR**

- 10 a. List briefly about the highway user benefits. (08 Marks)  
b. Discuss about the factors on which the motor vehicle operating cost depends on. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.