

CBCS SCHEME

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15CT54

Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019 Transportation Engineering

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Mention the recommendations and implementation of the Jayakar committee. (08 Marks)
b. Mention the different modes of transportation. Explain the characteristics of road transport. (08 Marks)

OR

- 2 a. Define planning surveys. Mention the various studies conducted for planning surveys. (08 Marks)
b. Determine the length of different categories of roads in a state for the year 2021 using following data having area 80,000 km² total number of towns being 86 overall density aimed at 82cm/km². (08 Marks)

Module-2

- 3 a. Explain the various factors affecting the highway alignment. (08 Marks)
b. What are the objectives of providing camber? Explain with neat sketch different shapes of camber indicate IRC recommended values of camber. (08 Marks)

OR

- 4 a. Calculate the minimum sight distance required to avoid head on collision of two cars approaching from the opposite directions at 90 and 60 kmph. Assume a reaction time of 2.5 seconds, co-efficient of friction = 0.7 and a braking efficiency of 50% in either case. (08 Marks)
b. Calculate the stopping sight distance as a highway at a descending gradient of 2% for a design speed of 80 kmph. Assume other data as per IRC recommendations. (08 Marks)

Module-3

- 5 a. Define permanent way. Elaborate the requirements of ideal permanent way. (08 Marks)
b. What do you understand by creep of rails? Explain any one theory of creep. (08 Marks)

OR

- 6 a. Explain the method of welding of rails. (08 Marks)
b. Explain the three types of rail sections with neat sketches. (08 Marks)

Module-4

- 7 a. Classify different varieties of ballast materials. Explain any three in detail. (08 Marks)
b. Mention the functions of sleepers and define sleepers. (08 Marks)

OR

- 8 a. Explain the following :
- i) Tractive effort of locomotive
 - ii) Handling capacity of locomotive (08 Marks)
- b. What would be the gradient for a B.G track when the grade resistance together with curve resistance due to a curve of 3° shall be equal to the resistance due to ruling gradient of 1 in 200? (08 Marks)

Module-5

- 9 a. Draw a neat sketch of a left hand turn out and show various parts on it. (08 Marks)
- b. Write a note on maintenance of a railway track. (08 Marks)

OR

- 10 a. What is Marshalling yard? Explain its working with a neat sketch. (08 Marks)
- b. Explain the following :
- i) Turn Table
 - ii) Water columns
 - iii) Buffer stops (08 Marks)
