



Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Transportation Engineering

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain the importance of transportation. Write the advantages and disadvantages of different modes of transportation. (10 Marks)
- b. Explain interpretation of planning survey. Briefly explain Vision 2021. (10 Marks)

OR

- 2 a. Explain Engineering Surveys. (10 Marks)
- b. Explain briefly various stages of work in new highway project. (10 Marks)

Module-2

- 3 a. A state highway passing through a rolling terrain has a horizontal curve of radius equal to ruling minimum radius. Design all geometric features of horizontal curve, assuming suitable data. (12 Marks)
- b. With a neat sketch briefly explain about camber and width of carriage way. (08 Marks)

OR

- 4 a. Find safe overtaking sight distance for design speed 96 kmph, acceleration of overtaking vehicle 1.92 kmph/sec, draw neat sketch of overtaking zone (minimum). (10 Marks)
- b. Write the difference between flexible pavement and rigid pavement. (10 Marks)

Module-3

- 5 a. Explain the properties of aggregates and tests to be conducted on aggregates. (10 Marks)
- b. CBR tests were conducted on two specimens of a soil. Determine CBR value of the soil, if 100 divisions of load dial represents 190kg load in the calibration chart of the proving ring.

| Penetration of plunger, mm | Load dial reading, divisions | |
|----------------------------|------------------------------|------------|
| | Specimen 1 | Specimen 2 |
| 0.0 | 0 | 0 |
| 0.5 | 8 | 0.5 |
| 1.0 | 15 | 1.5 |
| 1.5 | 23 | 2.5 |
| 2.0 | 29 | 6.0 |
| 2.5 | 34 | 13 |
| 3.0 | 37 | 20 |
| 4.0 | 43 | 30 |
| 5.0 | 48 | 38 |
| 7.5 | 57 | 50 |
| 10.0 | 63 | 58 |
| 12.5 | 67 | 63 |
| - | - | - |

(10 Marks)

OR

- 6 a. Explain the design elements of highway embankment. (10 Marks)
b. Explain in brief the specification of material and construction steps of WMM layer. (10 Marks)

Module-4

- 7 a. With a neat sketch, explain the procedure for design of filter material in highway drainage. (10 Marks)
b. Explain in brief three methods of economic evaluation of highway projects. (10 Marks)

OR

- 8 a. Explain in briefly highway user benefits and Vehicle Operation Cost (VOC). (10 Marks)
b. Write note on BOT and BOOT. (10 Marks)

Module-5

- 9 a. Explain about traffic regulation and controls. (10 Marks)
b. Define the term "Runway Orientation". Explain about any one type of wind rose diagram. (10 Marks)

OR

- 10 a. Explain briefly functions of sleepers and ballast. (10 Marks)
b. Explain factors affecting selection of sites for an airport. (10 Marks)

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