



CBCS SCHEME

15CT762

Seventh Semester B.E. Degree Examination, Jan./Feb. 2021 Pavement Materials and Construction

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. What are the desirable properties of Road aggregates? Mention the laboratory tests to assess their properties. (08 Marks)
- b. What is meant by Ageing of Bitumen? Briefly explain the tests conducted to simulate Ageing in the laboratory. (08 Marks)

OR

- 2 a. What is the importance of shape of Coarse aggregate? How can it be assessed in the laboratory? (08 Marks)
- b. What are the limitations of penetration grading system of Bitumen? How are they overcome by Viscosity grading system? (05 Marks)
- c. Mention the recommended Viscosity grades of Bitumen for use in India. (03 Marks)

Module-2

- 3 a. What is Emulsified Bitumen? Mention the 2 commonly used types and their application in road works. (08 Marks)
- b. Explain any two lab tests conducted to assess the potential of aggregates for moisture induced damage. (08 Marks)

OR

- 4 a. What is Cutback? Mention its types and uses. (08 Marks)
- b. Explain the mechanism of stripping of bitumen from aggregates. How can it be reduced? (08 Marks)

Module-3

- 5 a. Explain the desirable properties of Bitumen mixes for pavement surface courses. (08 Marks)
- b. A mix contains CA – Sp. Gravity 2.7, FA – Sp gravity – 2.9 and mineral filler – Sp gravity 1.5 in proportion 60 : 30 : 10 by weight. These aggregates when mixed with Bitumen Sp gravity – 1.0 and compacted to a unit weight of 2.2g/cc , contains 5% voids. How much bitumen does this Specimen contain? (08 Marks)

OR

- 6 Explain the Bitumen mix design by Marshall method? (16 Marks)

Module-4

- 7 a. Explain the functions and design elements of a highway embankment. (08 Marks)
- b. A 2 – lane flexible pavement in cutting is being constructed on a pre – dominantly clayey soil in North Karnataka region. List out the various equipments which need to be used for the construction of the various layers and mention the purpose of each. (08 Marks)

OR

1 of 2

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.

- 8 a. Briefly explain the various QC tests conducted on soil subgrade before during and after construction. (08 Marks)
- b. Write a short note on :
- i) Power shovel. (04 Marks)
- ii) Smooth wheeled roller. (04 Marks)

Module-5

- 9 a. What are the components of a Flexible pavement? Mention their functions. (08 Marks)
- b. Explain the construction of Contraction Joints with and without dowel bars. (08 Marks)

OR

- 10 a. What is Dry Lean Concrete? How is it constructed? (08 Marks)
- b. Write the steps for construction of WMM Base course. (08 Marks)

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