

# CBCS SCHEME

18CV733



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## Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024 Pavement Materials and Construction

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 desirable properties of aggregates to be used in pavement construction. (08 Marks)
- b. List the various tests conducted on road aggregates in order to ascertain its suitability and indicate the desirable values of the test results. (08 Marks)
- c. Briefly explain the classification of aggregates. (04 Marks)

OR

- 2 a. With a note on aggregate blending to meet the specified gradation. (08 Marks)
- b. What are the tests conducted on Bitumen? Mention the importance of each. (08 Marks)
- c. List and explain the chemical constituent of bituminous road binder. (04 Marks)

### Module-2

- 3 a. What are emulsions and cutbacks? How are they prepared? Mention the conditions of its use. (10 Marks)
- b. List the various lab tests to determine the adhesion of bituminous binder to an aggregate and explain any one. (10 Marks)

OR

- 4 a. Explain the common adhesion problem in Bituminous construction. (06 Marks)
- b. Briefly explain the mechanism of stripping of Bituminous binder. (08 Marks)
- c. List the different tests conducted on bituminous emulsions. Explain any one. (06 Marks)

### Module-3

- 5 a. List and explain the desirable properties of bituminous mix. (08 Marks)
- b. Explain the procedure of determining the optimum bitumen content for a bituminous mix by Marshall stability test. (12 Marks)

OR

- 6 a. Explain :
  - i) Open graded mix
  - ii) Dense graded mix
  - iii) Flexibility and brittleness(08 Marks)
- b. Explain proportioning of materials by Rothfuch's method with the help of a graph. (12 Marks)

### Module-4

- 7 a. Explain the procedure of the compacting equipments used for highway construction? Mention its uses. (10 Marks)
- b. Enumerate the steps in the preparation of subgrade. (10 Marks)

OR

- 8 a. Mention the equipments used for excavation in the construction of bituminous pavements. Explain any two with a neat sketch. (10 Marks)
- b. How is the adequacy of the compaction in the field evaluated? What are the quality control tests or checks in the field? (10 Marks)

Module-5

- 9 a. Discuss the materials required and construction steps for the construction of Bituminous concrete pavement. (10 Marks)
- b. Explain the material specification and quality control checks for wet mix macadam. (10 Marks)

OR

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- 10 a. Mention the specification and method of cement concrete pavement construction. (10 Marks)
- b. List the quality checks on cement concrete pavement carried out both laboratory and on the field. Explain briefly. (10 Marks)

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