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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**

- 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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