

CBCS SCHEME

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17CT762

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 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. List and explain desirable properties of road aggregates used for road construction. (10 Marks)
- b. List the tests conducted on road aggregates. Explain aggregate crushing value test in detail. (10 Marks)

OR

- 2 a. With a neat sketch, explain the manufacturing process. (10 Marks)
- b. List the tests conducted on Bitumen. Explain softening point test on bitumen with neat sketch. (10 Marks)

Module-2

- 3 a. Explain the preparation of cut-back. What are the types of cut-back? With application of each type. (10 Marks)
- b. List the types of adhesion tests. Explain briefly about immersion trafficking test with a neat sketch. (10 Marks)

OR

- 4 a. Explain briefly the preparation of Bitumen Emulsion. What are the types of Emulsion? Mention the application of each type of emulsion. (10 Marks)
- b. Briefly explain the mechanism of stripping of bituminous binder and the method of improving adhesion. (10 Marks)

Module-3

- 5 a. Explain briefly the describe properties of bituminous mix. (10 Marks)
- b. What are the steps followed for rational design of bituminous mix. (10 Marks)

OR

- 6 a. Explain briefly Marshall method of bituminous mix design. (10 Marks)
- b. 624gm of CA, 415.2gm of FA, 72gm of filler and 88.8gm of bituminous binder are used in preparing a sample of bituminous mix. The specific gravity of these materials are respectively 2.62, 2.68, 2.70 and 1.05. The compacted specimen having 63.5mm height and 10.16cm dia weighs 1180gms in air and 570gms in water. Compute the values of G_m , G_t , V_v , VMA and VFB. (10 Marks)

Module-4

- 7 a. Explain briefly the construction steps involved in subgrade preparation. What are the quality control checks carried out. (10 Marks)
- b. Enumerate the steps in the formation of an embankment. (10 Marks)

OR

- 8 a. List and explain various types of equipment for excavation. (10 Marks)
b. List and discuss the use of different compacting equipments. Explain with neat diagram, working principle of sheep foot roller with advantages. (10 Marks)

Module-5

- 9 a. Explain briefly the construction steps involved in bituminous concrete with quality control tests. (10 Marks)
b. Enumerate the specification of materials and construction procedure for WBM roads. (10 Marks)

OR

- 10 a. Explain the following types of joins in rigid pavements with neat sketch.
i) Longitudinal joint
ii) Expansion joint
iii) Construction joint. (10 Marks)
b. Enumerate the steps involved in construction of cement concrete pavements. (10 Marks)
