

CBCS SCHEME

18CV733

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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. Briefly explain the basic classification of aggregates. (05 Marks)
- b. Write a note on aggregate blending to meet the specified gradation. (05 Marks)
- c. Explain and indicate the suitability of following tests on the selection of proper aggregates for various pavement constructions with their permissible limits:
 - i) Aggregate impact test
 - ii) LOS Angles abrasion test. (10 Marks)

OR

- 2 a. Explain the manufacturing process of bitumen with a neat sketch. (10 Marks)
- b. Explain the following tests conducted on bituminous binders with neat sketches:
 - i) Penetration test
 - ii) Softening point test. (10 Marks)

Module-2

- 3 a. Explain briefly the preparation of emulsion and types of emulsions. (10 Marks)
- b. What are cutbacks? How are they prepared? Mention types of cutbacks with applications of each type. (10 Marks)

OR

- 4 a. What is stripping of bitumen? Briefly explain the mechanism of stripping and mention the methods of improving adhesion. (10 Marks)
- b. List out types of adhesion tests. Explain in brief about immersion trafficking test with neat diagram. (10 Marks)

Module-3

- 5 a. Explain the mechanical properties of Bituminous mix. (10 Marks)
- b. Explain briefly Marshall method of Bituminous mix design. (10 Marks)

OR

- 6 a. The specific gravities and weight proportions for aggregate and bitumen are as under for the preparation of Marshall mix design. The volume and weight of one Marshall mix design. The volume and weight of one Marshall specimen was found to be 475CC and 1100gm. Assuming absorption of bitumen in aggregate is zero, find V_v , V_b , VMA and VFB.

Item	Aggregate	Aggregate 2	Aggregate 3	Aggregate 4	Bitumen
Weight (gm)	825	1200	325	150	100
Special gravity	2.63	2.51	2.46	2.43	1.05

- b. Explain how the optimum bitumen content is determined. (12 Marks)
- (08 Marks)

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.

Module-4

- 7 a. With neat sketch, explain i) Dragline ii) Power shovel. (10 Marks)
b. Discuss the suitability of different compacting equipments. Briefly explain working principle of sheeps foot rollers, with neat sketch. (10 Marks)

OR

- 8 a. Enumerate the steps involved in the formation of embankment. (10 Marks)
b. Write short notes on:
i) Desirable properties of subgrade soil
ii) Quality control tests for subgrade construction. (10 Marks)

Module-5

- 9 a. Explain the material specification, construction procedure for water Bound Macadam roads. (10 Marks)
b. Write a note on construction of Dense Bituminous Macadam pavement. (10 Marks)

OR

- 10 a. With the neat figures, explain the following types of joints in rigid pavements:
i) Expansion joint
ii) Contraction joint
iii) Longitudinal joint. (12 Marks)
b. Differentiate between flexible and rigid pavements. (08 Marks)
