



CBCS SCHEME

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18CV733

Seventh Semester B.E. Degree Examination, Jan./Feb. 2023 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 the major differences between bitumen and tar. Describe the laboratory procedure for the determination of hardness property of bitumen. (10 Marks)
b. Explain with the aid of graph, Roth Futch's method for gradation of aggregates. (10 Marks)

OR

- 2 a. Classify the different types of aggregates based on origin. (06 Marks)
b. List the various tests on bitumen, and mention the importance of each. (08 Marks)
c. Explain how bitumen is produced from crude oil. (06 Marks)

Module-2

- 3 a. Explain the mechanism of stripping of bitumen. (08 Marks)
b. What is Emulsion? Explain the different types of Emulsions. (06 Marks)
c. What is cutback? Explain the different tests conducted on cutback. (06 Marks)

OR

- 4 a. Mention the various adhesion tests conducted on bituminous mixes. Explain any two in detail. (12 Marks)
b. Mention the different methods to improve the adhesion. (08 Marks)

Module-3

- 5 a. Explain how the optimum bitumen content is determined. (10 Marks)
b. List out the desirable properties of bituminous mixes. (10 Marks)

OR

- 6 a. Explain how the test specimens are prepared to conduct the Marshall stability test. (08 Marks)
b. The specific gravities and weight properties for aggregates and bitumen are as under the preparation of Marshall mix design. The volume and weight of one Marshall specimen was found to be 475cc and 1100gms. Assume absorption of bitumen in aggregate is zero, find V_v , V_b VMA and VFB.

Item	A-1	A-2	A-3	A-4	Bitumen
Wt. (gms)	825	1200	325	150	100
SP. gravity	2.63	2.51	2.46	2.43	1.05

(12 Marks)

Module-4

- 7 a. Discuss the various factors that control the design of highway embankments. (10 Marks)
b. Write an explanatory note on different rollers used in road constructions. (10 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.

OR

- 8 a. Explain the steps in the construction of subgrade. Also mention the quality control tests for subgrade. (10 Marks)
- b. Explain the different excavation equipments used in the road constructions. (10 Marks)

Module-5

- 9 a. With neat sketches, explain the various types of joints in cement concrete road. (10 Marks)
- b. Explain the material specification, construction method and quality control checks for wet mix macadam. (10 Marks)

OR

- 10 a. Enumerate the steps involved in the construction of cement concrete pavements. (10 Marks)
- b. Write a short note on:
- i) Prime Coat ii) Requirements of good joint. (10 Marks)
