



## Seventh Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Pavement Materials and Construction

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 road aggregates. (10 Marks)
- b. With a neat sketch, explain aggregate crushing test. (10 Marks)

OR

- 2 a. Explain the desirable properties of bitumen. (10 Marks)
- b. With a neat sketch, explain ductility test on bitumen. (10 Marks)

### Module-2

- 3 a. Explain the desirable properties of bituminous mixes. (10 Marks)
- b. With the help of graph, explain Roth Futch's method for gradation of aggregates. (10 Marks)

OR

- 4 a. Explain in detail about Marshall mix design. (10 Marks)
- b. The specific gravities and weight proportions for aggregates and bitumen are as under for the preparation of Marshall mix design. The volume and weight of one Marshall specimen was found to be 475 cc and 1100 gms. Assuming absorption of bitumen in aggregates is zero. Find  $V_v$ ,  $V_b$ ,  $V_{MA}$  and  $V_{FB}$ .

Item	A-1	A-2	A-3	A-4	B
wt (gms)	825	1200	325	150	100
Specific gravity	2.63	2.51	2.46	2.43	1.05

(10 Marks)

### Module-3

- 5 a. Write a short note on admixtures. (10 Marks)
- b. What are fibers in concrete? Explain different types of fibers in concrete. (10 Marks)

OR

- 6 a. Give explanation of fly ash usage in concrete. (10 Marks)
- b. Explanation on waste plastic in concrete. (10 Marks)

### Module-4

- 7 a. What types of excavation equipment are used on construction site? With a neat sketch, explain power shovel its operation and application. (10 Marks)
- b. Explain the steps used in the preparation of subgrade. (10 Marks)

OR

- 8 a. Write an explanatory note on rollers in road construction. (10 Marks)
- b. List out the quality control tests for construction of subgrade. (10 Marks)

**Module-5**

- 9 a. Explain the construction steps for flexible pavements. (10 Marks)  
b. Explanation on quality control tests on granular sub base. (10 Marks)

**OR****CMRIT LIBRARY**  
BANGALORE - 560 037

- 10 a. Explain the construction steps for cement concrete pavements. (10 Marks)  
b. What are the requirements of a good joint? Explain briefly with diagram of expansion joint in concrete. (10 Marks)

\* \* \* \* \*