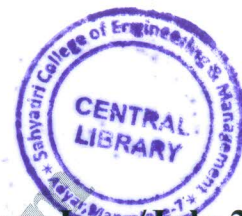


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Seventh Semester B.E. Degree Examination, June/July 2019
Pavement Materials and Construction

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART - A

- 1 a. Explain briefly the Rothfutch's method of aggregate blending techniques with a neat sketch. (10 Marks)
- b. Indicate the suitability of the following tests on the selection of proper aggregates for various bituminous surfacing : (10 Marks)
 - (i) Aggregate impact test
 - (ii) Los Angeles Abrasion test.
- 2 a. Differentiate between tar and bitumen. (04 Marks)
- b. Explain the manufacturing process of bitumen with a neat sketch. (10 Marks)
- c. Specify the standard values recommended for bitumen to be used in road works for the following tests: (06 Marks)
 - (i) Penetration test
 - (ii) Ductility test.
- 3 a. Mention the various adhesion tests conducted on bituminous mixes. Explain immersion trafficking test with neat sketch. (12 Marks)
- b. Explain briefly the preparation of emulsion and types of emulsions. (08 Marks)
- 4 a. Explain briefly the desirable properties of bituminous mixes. (08 Marks)
- b. A asphalt concrete mix for the Marshall stability test gave the following results:

Coarse aggregate = 40% ,	Specific gravity = 2.70
Fine aggregate = 46% ,	Specific gravity = 2.65
Mineral filler = 8% ,	Specific gravity = 3.0
Bitumen = 6% ,	Specific gravity = 1.03

 The prepared specimen weigh 1220 gm in air and 706 gm in water. Determine : (12 Marks)
 - (i) Maximum theoretical bulk density
 - (ii) Air voids in the total mix
 - (iii) Voids in mineral aggregate
 - (iv) Voids filled with bitumen

PART - B

- 5 a. Explain briefly the working principle of power shovel and class shell, with neat sketch. (10 Marks)
- b. Briefly explain the different types of rollers used in road construction. (10 Marks)
- 6 a. Enumerate the steps in the construction of subgrade. What are the quality control tests or checks for subgrade construction? (10 Marks)
- b. Explain the steps in the formation of an embankment (10 Marks)
- 7 a. Differentiate between flexible and rigid pavement. (08 Marks)
- b. Explain the material specification, construction method and quality control checks for wet mix macadam. (12 Marks)
- 8 a. Explain the procedure adopted for the construction of cement concrete roads. (10 Marks)
- b. Explain the various types of joints in cement concrete road and their significance. (10 Marks)

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