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10CT761

Seventh Semester B.E. Degree Examination, Dec.2016/Jan.2017
Pavement Materials and Construction

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Explain briefly the desirable properties of road aggregates. (06 Marks)
b. List the various tests conducted on road aggregates in order to ascertain its suitability and indicate the desirable values of the test results. (08 Marks)
c. Why aggregate proportioning is required? Explain the Routhfutch's method of proportioning materials. (06 Marks)
- 2 a. List the various tests conducted on bitumen. Explain any two tests with neat sketches. (08 Marks)
b. Explain briefly the manufacturing process of tar. (06 Marks)
c. What are the requirements of bitumen used for road work? (06 Marks)
- 3 a. What are emulsions and cut backs? How are they prepared? Mention under what condition they are used. (10 Marks)
b. What is adhesion failure? Briefly explain the mechanism of stripping of bituminous binder and mention the methods of improving adhesion. (10 Marks)
- 4 a. What are the desirable properties of bituminous mixes? Mention the steps followed for the design of bituminous mix. (10 Marks)
b. Explain Marshall method of bituminous mix design. (10 Marks)

PART – B

- 5 a. List the various equipments used in earthwork. Explain the working principle, advantages and disadvantages of i) power shovel ii) grader iii) sheep footed rollers. (10 Marks)
b. List the special equipments used for the construction of bituminous and cement concrete pavements, and explain any one equipment for each. (10 Marks)
- 6 a. Explain the significance of subgrade soil. Enumerate the steps followed in the construction of embankment. (10 Marks)
b. Explain the preparation of subgrade and quality control checks for subgrade. (10 Marks)
- 7 a. Explain the materials specification and construction steps for the construction of bituminous concrete pavement. Also mention the quality control checks. (10 Marks)
b. What are the functions of prime coat, tack coat, and seal coat in bituminous concrete pavement? Mention the material specification of each. (10 Marks)
- 8 a. Explain the procedure adopted for the construction of cement concrete pavement and list its quality control checks. (10 Marks)
b. What are the requirements of a good joint for a cement concrete pavement? (05 Marks)
c. Differentiate between flexible and rigid pavements. (05 Marks)

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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.