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10CV763

Seventh Semester B.E. Degree Examination, Aug./Sept.2020
Pavement Materials and Constructions

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Explain the desirable properties of aggregates to be used in pavement construction. **(05 Marks)**

b. Classify the different types of aggregates based in Origin. **(05 Marks)**

c. Explain briefly the Rothfutch method of desired gradation. **(10 Marks)**

2 a. Differentiate between Bitumen and Tar. **(06 Marks)**

b. List the various test on bitumen and mention the importance of each. **(08 Marks)**

c. Explain in brief the manufacturing process of Tar. **(06 Marks)**

3 a. What are Emulsions? Explain different types of Emulsions. **(06 Marks)**

b. What are the Cutbacks? What are their characteristics? **(06 Marks)**

c. What are the adhesion tests? Explain any one briefly. **(08 Marks)**

4 a. Explain desirable properties of bitumen mix. **(10 Marks)**

b. A bituminous concrete mix is prepared with aggregates A, B and C mixed in all proportion 40 : 50 : 10 and bitumen are 2.7, 2.8, 3.0. The bitumen content by weight of aggregate is 5%. Determine the following :

(i) Maximum theoretical density

(ii) Percentage air voids in total mix

(iii) Voids in mineral aggregates

(iv) Voids filled with bitumen given that specimen of the mix weights 1215.5 gm in air and weighs 720.60 gm in water.

(v) Actual weight of bitumen in percentage. **(10 Marks)**

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PART – B

5 a. List various types of equipments used for (i) Excavation (ii) compaction mentioning advantages of each equipment. **(10 Marks)**

b. What do you mean by grading? What are the different operations done by grader? **(10 Marks)**

6 a. Explain the procedure of raising the gradeline of a highway above existing ground level. **(10 Marks)**

b. Enumerate the steps in the construction of Subgrade? What are the quality control checks at the lab? **(10 Marks)**

7 a. Explain (i) Surface dressing (ii) Tack coat (iii) Prime coat. **(12 Marks)**

b. Enumerate the construction steps of Cement Concrete Pavement. **(08 Marks)**

8 Write short notes on any four of the following :

a. Warping Joints b. Clamshell c. Flash and Fire Point

d. Contraction joints e. Working Principle of Power Shovel. **(20 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.