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**B.E./B.Tech (Full Time) DEGREE END SEMESTER EXAMINATION JAN 2022**

**CIVIL ENGINEERING BRANCH**

**SEVENTH SEMESTER**

**(REGULATIONS 2015)**

**CE7019 – PAVEMENT ENGINEERING**

**Time : 3 Hours**

**Max Marks : 100**

**PART –A (10 x 2 = 20 Marks)**

- 1 List the types of pavements.
- 2 What are the layers of Rigid and Flexible pavement?
- 3 What are the materials used in Rigid and Flexible pavement?.
- 4 State the relevance of Dowel Bars and Tie Bars.
- 5 What are the physical properties of aggregates in bituminous pavements?
- 6 Differentiate between Flash Point and Fire Point test of Bitumen?
- 7 Define Modified Binders
- 8 Define Elongation Index of aggregates?
- 9 What is the critical region of stresses in CC pavement?
- 10 What do you understand by Present Serviceability Index?

**PART – B (5 x 13 = 65 Marks)**

- 11a) Discuss the layers in pavements and state the difference between Flexible and Rigid Pavement. **(13marks)**

**(OR)**

- 11b) Discuss the factors considered in the design of Flexible Pavement **(13marks)**

- 12a) Explain the CBR test procedure to assess the strength of soil **(13marks)**

**(OR)**

- 12b) Discuss the following: **(13marks)**
- i. Types of concrete pavement.
  - ii. Load Transfer Efficiency

13a) Discuss Flakiness test of aggregate and Softening Point test of Bitumen. **(13marks)**

**(OR)**

13b) Explain the Marshall method of mix design of Bituminous Mixes. **(13marks)**

14a) Explain any 2 failures each in flexible and rigid pavements **(13marks)**

**(OR)**

14b) Discuss the following: **(13marks)**

- i. Bitumen emulsion.
- ii. Prime coat and Tack Coat.
- iii. Give reason for replacing Penetration Grade with Viscosity Grade of bitumen and list the types of VG grading.

15a) Explain the construction procedure for flexible pavements **(13marks)**

**(OR)**

15b) Discuss the various methods of soil stabilization. **(13marks)**

**PART – C ( 1 x 15 = 15 Marks)**

16) Explain briefly the Marshall Method of Mix Design for bituminous pavement **(15marks)**