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B. TECH
(SEM V) THEORY EXAMINATION 2018-19
CONCRETE TECHNOLOGY

Time: 3 Hours ***Total Marks: 70***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 7 = 14**

a. What is bulking of sand?
b. What are the thermal properties of aggregate?
c. Define Plastic concrete.
d. What is the impact of W/C ratio on Durability?
e. Write the concept of mix Design.
f. Define Standard Deviation.
g. What is the Rheological representation of Creep?

SECTION B

2. Attempt any *three* of the following: **7 x 3 = 21**

a. What are the roles of various ingredients of cement? What are the harmful compounds likely to be present in cements?
b. Describe the mechanism of action of plasticizers with neat sketch. Mention any three Super plasticizers.
c. Design a concrete mix of M30 grade. Take standard deviation of 5MPa.The specific gravities of coarse aggregate and fine aggregate are 2.75 and 2.62 respectively. The bulk density of coarse aggregate is 1610 kg/m^3 and fineness modulus of aggregate is 2.70. A slump of 60 mm is necessary The water absorption of coarse aggregate is 1% and free moisture in fine aggregate is 2% .Design the concrete mix using IS code method. Assume any missing data.
d. What is the relation between creep and time? What is the effect of creep on concrete?
e. Explain the following,
   i. Light weight aggregate concrete
   ii. SIFCON
   iii. Types of polymer concrete

SECTION C

3. Attempt any *one* part of the following: **7 x 1 = 7**

(a) What are the sources of Aggregate? And also classify the particles on the basis of aggregate in tabular form.
(b) How is water used in making concrete and what is its role in the foundation and properties of concrete?

4. Attempt any *one* part of the following: **7 x 1 = 7**

(a) Describe gas forming agents? Give an example of a material in powder form used as a gas forming agent.
(b) Write a note on workability agents. Give examples.

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5. **Attempt any *one* part of the following:** 7 x 1 = 7

(a) Explain how you would determine the various elastic moduli for concrete.

(b) What do you understand by carbonation of concrete? How is it tested?

6. **Attempt any *one* part of the following:** 7 x 1 = 7

(a) Write a brief note on Flexure strength of Concrete.

(b) Discuss the influence of mix proportions of concrete on shrinkage?

7. **Attempt any *one* part of the following:** 7 x 1 = 7

(a) What is the need to study fiber reinforced concrete and explain briefly the factors effecting properties of fiber reinforced concrete?

(b) Difference between High performance concrete and high density concrete.

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