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Total Number of Pages: 01

M.TECH
CEPE102

1st Semester Back Examination – 2016-17
ADVANCE CONSTRUCTION MATERIALS
BRANCH(S): STRUCTURAL ENGINEERING

Time: 3 Hours

Max Marks: 70

Q.CODE: Y845

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

- Q1 Answer the following questions: (2 x 10)
- a) What are the two different stages of concrete?
 - b) Distinguish between *segregation* and *bleeding*.
 - c) State the rheological equation of fresh concrete.
 - d) State different types of admixtures used in concrete preparation.
 - e) What is the advantage of *geo-polymer* concrete?
 - f) Distinguish between *plasticizers* and *superplasticizers*.
 - g) Give an example of an *accelerator* and a *retarder*.
 - h) What do you mean by *high performance concrete*?
 - i) What do you mean by *fibre reinforced concrete*?
 - j) How can you avoid corrosion in reinforcing steel?
- Q2 a) What do you mean by *rheology* of concrete? What are the various parameters to determine the suitability of a concrete mix? (5)
- b) Explain various factors which affect the rheological properties. (5)
- Q3 What do you mean by *concrete mix design*? Describe the Concrete Mix Design procedure recommended by the Indian Standard. (10)
- Q4 What are the reasons for corrosion of concrete and how does it affect the durability. What precautions need to be taken for hot-weather concreting. (5+5)
- Q5 a) How do you monitor the quality control measures for concrete through inspection and testing? (5)
- b) Discuss the classification and use of *ready mix concrete*. (5)
- Q6 a) Describe various mechanical and physical properties of fibre reinforced concrete. (5)
- b) State the types of fibres and matrices used in fibre reinforced concrete. (5)
- Q7 Explain about the various structural elastomeric bearings and resilient seatings alongwith their applications. (10)
- Q8 Write short notes on **any two**. (5 x 2)
- a) Ferro-cement and its application
 - b) Gel/ space ratio
 - c) Cellular concrete
 - d) Sealants and adhesives for concrete works