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Total Number of Pages : 02

M.Tech
P2CNCC07

2nd Semester Regular / Back Examination 2018-19
ADVANCE CONSTRUCTION MATERIALS
BRANCH : STRUCTURAL & FOUNDATION ENGG, STRUCTURAL ENGG
Max Marks : 100
Time : 3 Hours
Q.CODE : F412

Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.

The figures in the right hand margin indicate marks.

Part- I

- Q1 **Only Short Answer Type Questions (Answer All-10)** (2 x 10)
- a) What do you mean by a *stable concrete mix* wrt transportation and placing?
 - b) Define *workability* of concrete.
 - c) What are the various parameters on which, the effectiveness of an admixture depends?
 - d) Give some examples of organic wastes used in preparation of concrete.
 - e) Distinguish between *medium strength* and *high strength concrete*.
 - f) What type of cement is used for preparation of concrete under high temperature condition?
 - g) State the main constituents of *ferro-cement*.
 - h) What are the different types of polymers used in civil engineering applications?
 - i) What is the range of thickness of steel fibres used in FRC applications?
 - j) How the polymer concrete composite is obtained?

Part- II

- Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** (6 x 8)
- a) What do you mean by rheology of concrete? What are the various parameters which are necessary to determine the suitability of a concrete mix?
 - b) Explain application of FRP in sandwich panels.
 - c) Explain the influence of water/cement ratio on strength of concrete. Describe the method of preparation of light weight concrete.
 - d) Describe the characteristics of different inorganic/urban waste materials used for preparation of concrete.
 - e) Describe the various factors which control the creep and shrinkage behaviour of concrete.
 - f) Describe various mechanical and physical properties of fibre reinforced concrete.
 - g) Explain the mechanism, construction features and types of ferrocement used in different construction practices.
 - h) What do you mean by no-fines concrete? Explain its various characteristics and properties.
 - i) Describe the causes and preventive measures for corrosion of concrete.
 - j) Explain the different types of polymer foams and their applications in buildings.
 - k) Discuss the use of various sealants and adhesives for concrete works.
 - l) Describe the improvements in various properties by use of polymers in concrete.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

- Q3** What do you mean by workability of concrete? Distinguish between *segregation* and *bleeding*. Explain any one laboratory test to measure workability of concrete. **(16)**
- Q4** Describe the steps wise procedure adopted for concrete mix design as prescribed by Bureau of Indian Standard. **(16)**
- Q5** What do you mean by polymer impregnated concrete? Explain the step by step process for preparation of this concrete and its applications in various fields. **(16)**
- Q6** Explain the various structural elastomeric bearings and resilient seatings alongwith their applications. **(16)**