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53 (CE 504) CRTCC

2013

(December)

CONCRETE TECHNOLOGY

Paper : CE-504

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer all questions.

1. (a) What are the factors affecting the compressive strength of concrete ? 4
- (b) Discuss the tests performed for compressive strength of concrete. 8

Contd.

(c) Write short notes on :

(i) High performance concrete

(ii) Concrete in sea-water

(iii) Methods of controlling sulphate attack

(iv) Mass concrete. $2 \times 4 = 8$

2. (a) Define durability of concrete. What is the impact of w/c ratio on durability ? 4

(b) Classify joints in concrete. Explain each of them with neat sketch ? 16

3. (a) Explain one of the popular and currently used methods of concrete mix design. 5

(b) What type of admixture would you recommend to the used 9

(i) to facilitate concreting in hot weather ?

(ii) for protecting hardened concrete against cycles of freezing and thawing ?

(c) Briefly define concrete admixtures and state reasons for their use in concrete. 6

4. (a) What are the advantages of using high-strength concrete ? 6
- (b) What are the basic properties of fibre-reinforced concrete which can be advantageously made use of in the design of structural elements ? 8
- (c) Why is light weight concrete preferred for constructing partitions in multi-storey buildings ? Explain with respect to their physical characteristics of light weight aggregate concrete. 6
5. (a) Distinguish between segregation and bleeding of concrete. 5
- (b) Discuss the various factors which affect the workability of concrete. 5
- (c) How will you classify the grade of concrete in UPV testing ?
What tests are used to determine the workability of fresh concrete ? Explain *any one* of them. 10
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