

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]  
(2125)

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**B. Tech 7th Semester Examination  
Advanced Concrete Technology (OS)**

CE-7013

**Time : 3 Hours**

**Max. Marks : 100**

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

- Note :** (i) Attempt any five questions selecting at least one from each sections A, B, C and D.  
(ii) Section E is compulsory.

**SECTION - A**

1. (a) Enumerate the influence of cement strength on grade of concrete. (10)  
(b) Write the role of different types of admixtures in concrete. (10)
2. (a) Explain the role of workability in different grade of concrete. (10)  
(b) What do you understand by shrinkage and creep of concrete? (10)

**SECTION - B**

3. Using IS 10262-2009 to design a M20 concrete mix for a RC structure for the following requirements:
  - (a) Design Stipulations:
    - (i) Exposure: Medium
    - (ii) Workability: 50-75 mm

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- (b) Characteristics of Materials:

Cement:

Type- OPC-53 grade

Specific gravity=3.15

Aggregate:	Fine aggregate	Coarse Aggregate
Type	River sand (Zone III)	Crushed granite
Maximum nominal size	–	20 mm
Specific gravity	2.56	2.85
Bulk density (kg/m <sup>3</sup> )	1700	1800
Fineness Modulus	2.4	6.5 (20)

4. Explain the merit and demerits of non-destructive testing of hardened concrete. (20)

**SECTION - C**

5. Write different utility of smart concrete. (20)
6. What is different suitability for flyash concrete? (20)

**SECTION - D**

7. Explain high strength concrete and its utility in structures. (20)
8. What are different control tests carried out for hardened concrete of M25 grade. (20)

**SECTION - E**

9. Attempt all the questions:
  - (i) Differentiate between PCC and RCC.
  - (ii) Write the special situations for utility of light weight concrete.

- (iii) Explain the necessity of high performance concrete.
- (iv) Write the procedure for finding consistency of cement.
- (v) Explain destructive and non-destructive testing of concrete.
- (vi) Explain merit of pre-stressed concrete and its uses.
- (vii) List out the different test conducted for self compacting concrete to control its quality.
- (viii) Write briefly on quality control of hardened concrete.
- (ix) Differentiate between high strength concrete and high performance concrete.
- (x) Explain the utility of standard deviation in the concrete mix design. (10x2=20)