B.E. Fourth Semester (Civil Engineering) (CGS)

10185 : Reinforced Cement Concrete - I (New) : 4 CE 05

P. Pages : 2 | AU - 2567

Time : Three Hours | Max. Marks : 80

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Notes :
1. Answer **three** question from Section A and **three** question from Section B.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.
5. IS 456-2000 (Revised) may be consulted.
6. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) State different types of cement. Explain any two in detail. **8**

b) Explain bulking of sand and its significance. **6**

OR

2. a) State and explain properties of fresh concrete. **7**

b) Why curing is required ? Explain different methods of curing. **7**

3. a) State and explain properties of hardened concrete. **7**

b) Define following terms : **6**
i) Modulus of elasticity.
ii) Creep
iii) Shrinkage

OR

4. a) Explain the laboratory method of finding cube strength of concrete. **6**

b) What are the factors affecting compressive strength of concrete, explain each one in brief. **7**

5. a) Define admixtures and explain any two types of admixtures. **7**

b) Explain the role of waterproofing admixture in enhancing performance of concrete. **6**

OR

6. a) Enlist construction chemicals and explain any one in detail. **7**

b) Explain the role of polymer bonding agents to enhance properties of concrete. **6**

SECTION - B

7.	a)	Explain the difference between Gunitting and Grouting with their corresponding field application.	8
	b)	Explain high performance concrete in detail.	6

OR

8.	a)	Explain : i) Light weight concrete. ii) Self compacted concrete.	8
	b)	State use of high strength concrete and high volume fly ash concrete.	6
9.	a)	Differentiate nominal mix and designed mix.	3
	b)	Explain the steps involved in I.S. code method of concrete mix design.	10

OR

10.	a)	Explain factors influencing the choice of mix design.	7
	b)	State the requirements of concrete mix design.	6
11.	a)	Define : i) Under reinforced section. ii) Balanced section.	4
	b)	Design a singly reinforced concrete beam to carry maximum bending moment of 130 kNm. Use M20 concrete and Fe 415 steel. Show reinforcement details.	9

OR

12.		Design a simply supported one way slab having effective span of 4.20 m subjected to uniformly distributed load of 7 kN/m^2 including self weight. Use M20 grade of concrete and Fe 415 steel. Also determine the distribution steel required. Show reinforcement details.	13

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