



Name :

Roll No. :

Invigilator's Signature :

CS/B.TECH (CE-OLD)/SEM-5/CE-502/2012-13

2012

CONCRETE TECHNOLOGY

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

i) Separation of coarse aggregates from mortar during transportation is known as

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|----------------|---------------|
| a) bleeding | b) creeping |
| c) segregation | d) shrinkage. |

ii) From workability point of view, the shape of aggregate suitable to use

- | | |
|------------|-------------------|
| a) angular | b) irregular |
| c) flaky | d) none of these. |

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- viii) Lower water-cement ratio in concrete
- a) increases the compressive strength
 - b) reduces the shrinkage and creep
 - c) reduces the permeability of concrete
 - d) all of these.
- ix) An accelerator shortens all of the following *except*
- a) setting time
 - b) period of curing
 - c) period of removal of formwork
 - d) strength of concrete.
- x) Light-weight concrete has all the following beneficial characteristics *except*
- a) high strength to mass ratio
 - b) high thermal insulation
 - c) high sound insulation
 - d) reduces drying shrinkage.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following $3 \times 5 = 15$

2. What is bulking of fine aggregate ? Explain the effect of moisture content on the bulking of sand.
3. What do you mean by uniform graded aggregate, well graded aggregate and gap graded aggregate ?
4. Name some empirical tests to measure workability and explain their suitability ?

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5. What are the factors affecting workability of concrete ? Explain briefly.
6. Write short notes on any one of the following :
 - a) Fibre reinforced concrete
 - b) Polymer concrete.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. What are the different tests conducted on hardened concrete ? Explain.
8.
 - a) What are the factors that influence the strength of cement concrete ? Briefly discuss the effects of water-cement ratio and workability on the strength of concrete.
 - b) What is shrinkage ? What factors promote shrinkage ? What precautions will you take to reduce it ? $8 + 7$
9.
 - a) What are design stipulations for design of concrete mix ? What test data for materials are required for the design ?
 - b) Describe in steps concrete mix design by the I.S. code method. $6 + 9$
10.
 - a) What are the advantages and disadvantages of PCC ?
 - b) What is sulphur attack ? What type of cement is used to minimize sulphur attack ?
 - c) Write short note on retarder. $5 + 5 + 5$

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