

Total No. of Questions : 12]

SEAT No. :

**P1683**

**[4859]-13**

[Total No. of Pages : 3

**B.E. (Civil)**

**e-ADVANCED CONCRETE TECHNOLOGY (Theory)  
(2008 Course) (Semester-I) (Elective-II)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) *Answer Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6 from Section-I and Q. 7 or Q. 8, Q. 9 or Q. 10, Q. 11 or Q. 12 from Section-II.*
- 2) *Answer to the two sections should be written in separate answer books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures in the bracket indicate full marks.*
- 5) *Electronic pocket calculator is permitted.*
- 6) *Assume suitable data, if necessary.*

**SECTION-I**

- Q1)** a) What are the different grades of ordinary Portland cement? Name few brands available in the market. [5]
- b) Explain coning and quartering method of obtaining laboratory sample of aggregates. [5]
- c) Explain the dry process of manufacturing of cement along with flow chart for the same. [8]

OR

- Q2)** a) Explain how particle size analysis is useful in concrete mix design. How particle size analysis is done? [8]
- b) Name any five chemical admixtures with their suitability in green concrete. [5]
- c) Explain in aggregate impact value test. [5]

- Q3)** a) Write in detail what do you mean by light weight concrete. What are its advantages? [8]
- b) Write a detailed note on “Design of No Fines concrete mixes”. [8]

OR

**P.T.O.**

- Q4)** a) What is meant by long term performance of concrete? What properties a high strength concrete should possess for long term performance? [8]
- b) What are the advantages of using high strength concrete? [8]

- Q5)** a) What is the difference between non-destructive and semi-destructive methods. [8]
- b) Enlist various non-destructive methods with their utility in brief. [8]

OR

**Q6)** Write notes on:

- a) Core Test. [5]
- b) Ground penetration method. [5]
- c) Infrared thermography. [6]

## **SECTION-II**

**Q7)** Explain the following terms: [18]

- a) Classification of artificial fibres.
- b) Relative fibre matrix stiffness.
- c) Fibre matrix interfacial bond.
- d) Factors affecting properties of FRC.

OR

- Q8)** a) Write a note on self compacting concrete. What are the properties of self compacting concrete? [8]
- b) Write notes on:
- i) SIFCON. [5]
- ii) SFRC. [5]

- Q9) a)** Write notes on: [8]  
Behaviour of SFRC in tension and compression.
- b) Write notes on: [8]
- i) Steel fibres.
  - ii) Glass fibres.

OR

- Q10)a)** What is compact cube test? How it is useful in determining the efficiency of FRC in shear? [6]
- b) Write notes on:
- i) Polymer impregnated concrete. [5]
  - ii) Slurry infiltrated fibre concrete. [5]

- Q11)a)** Explain Centrifuging and Guniting techniques of ferrocement casting. [8]
- b) Enlist the various components where ferrocement can be used. [4]
- c) Write the advantages and disadvantages of open mould method. [4]

OR

- Q12)a)** Explain skeletal armature method of ferrocement along with merits and demerits. [8]
- b) Explain the skeletal steel reinforcement in ferrocement. [4]
- c) Write the advantages of ferrocement. [4]

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