

Total No. of Questions : 12]

SEAT No. :

P724

[Total No. of Pages : 3

[4659] - 13

**B.E. (Civil) (Theory) (Semester - I)**

**E : ADVANCED CONCRETE TECHNOLOGY (Elective - II)**  
**(2008 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) *From Section - I Answer Q.No.1 OR Q.No.2, Q.No.3 OR Q.No.4, Q.No.5 OR Q.No.6 and From Section - II Answer Q.No.7 OR Q.No.8, Q.No.9 OR Q.No.10, Q.No.11 OR Q.No.12.*
- 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) Enlist the various characteristic of coarse aggregates. Explain Particle size and shape. **[5]**
- b) Explain coning and quartering method of obtaining laboratory sample of aggregates. **[5]**
- c) Enlist various physical laboratory tests with their practical utility. **[8]**

**OR**

- Q2)** a) Discuss the two problems “internal friction” and “segregation and bleeding” associated with green concrete. **[8]**
- b) What do you mean by “entrained air and entrapped air” in the concrete. How air entrainment can be achieve? How air entrainment is useful in concreting operation before setting and after hardening of concrete?**[10]**

***P.T.O.***

- Q3)** a) Write in detail what do you mean by light weight concrete. What are its advantages? [8]
- b) Discuss the importance and effects of water absorption and moisture content of lightweight aggregate concrete. [8]

**OR**

- Q4)** a) What is meant by long term performance of concrete? What properties a high strength concrete should possess for long term performance? [10]
- b) What are the various industrial applications of high strength concrete?[6]

- Q5)** a) Write notes on : [10]
- i) Acoustic emission method
- ii) Pulse echo method
- b) Differentiate between cracking, spalling and staining. [6]

**OR**

- Q6)** Write the limitations of following non-destructive tests : [4 × 4 = 16]
- a) Windsor Probe test
- b) Pulse echo method
- c) Radar technique
- d) Radiography

## **SECTION - II**

- Q7)** a) Write a note on self compacting concrete. Write the various ways in which it is obtained. [8]
- b) What are the properties of self compacting concrete? [8]

**OR**

- Q8)** Write notes on : [4 × 4 = 16]
- a) Fibres with respect to Volume, aspect ratio and orientation of fibres.
- b) Glass fibre reinforced concrete
- c) SIFCON
- d) SFRC

**Q9)** Write notes on : **[16]**

- a) Steel fibres
- b) Glass fibres
- c) Carbon fibres
- d) Polypropylene and nylon fibres

**OR**

**Q10)** Write notes on : **[5 + 5 + 6 = 16]**

- a) Mixing of FRC
- b) Applications of FRC
- c) Behaviour of FRC in tension

**Q11)** a) Enlist the casting techniques of ferrocement and explain any one. **[9]**  
b) Write a note on fibre reinforced polymeric meshes (FRP) along with merits and demerits. **[9]**

**OR**

**Q12)** a) Explain the constituents of ferrocement with respect to cement mortar mix, skeletal steel. **[9]**  
b) Write the advantages of ferrocement. **[9]**

