

[5254]-13

**B.E. (Civil Engineering)**

**ADVANCE CONCRETE TECHNOLOGY**

**(2008 Pattern) (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 and Q.7 or Q.8,Q.9 or Q.10, Q.11 or Q.12*
- 2) *Answers to the two sections should be written in separate answer-books.*
- 3) *Figures to the right indicate full marks.*
- 4) *Neat diagrams must be drawn wherever necessary.*
- 5) *Electronic pocket calculator is permitted.*
- 6) *Assume suitable data, if necessary.*

**SECTION - I**

- Q1)** a) Enlist the basic Ingredients of cement and their Significance. [6]
- b) Write a Brief note on Fly Ash. [6]
- c) How is the workability requirement determined for a reinforced concrete construction? [6]

OR

- Q2)** a) Write a short note on grading of aggregate and their Importance. [6]
- b) What are the various types of testing for cement? [6]
- c) Explain in brief gel space ratio, maturity concept? [6]

- Q3)** a) Briefly discuss the difference in the compressive strength of concrete cubes and concrete cylinders. [8]
- b) Write a Brief note on ultra light weight concrete. [8]

OR

- Q4)** a) Write a detailed note on “Design of No Fines concrete mixes”. [8]
- b) Explain in brief how to carried out under water concreting? [8]

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

- Q5) a)** Enlist the different methods of Non destructive Testing on RCC elements and explain any one method in details. [8]
- b) Write Detail note on Core Test. [8]

OR

- Q6)** Design a concrete mix of grade of M25 by IS Method [16]

Maximum size of aggregate (Crushed)- 20mm,

Compaction factor- 0.9,

Fine agg. Confirm to Zone II

Exposure condition moderate,

Specific gravity of both agg- 2.65,

Specific gravity of cement - 3.15,

Slump - 80mm

Assume suitable data if required

### **SECTION - II**

- Q7) a)** Explain the historical development of fiber reinforced concrete. [6]
- b) Compare naturally and artificially occurring fibers. [6]
- c) Explain steel fiber and carbon fiber. [6]

OR

- Q8)** Explain fibre reinforced in respect of : [4+4+4+4+2=18]

- a) Definition
- b) Types of fibres
- c) Merits of fibres
- d) Demerits of fibres
- e) Mixing of fibres

**Q9) a)** Explain behaviour of SFRC in tension. [8]

b) What are the current developments in FRC. [8]

OR

**Q10) a)** Write a note on “SIFCON” with reference to definition, structure, properties and use. [8]

b) Explain stress strain property and compressive strength properties of FRC. [8]

**Q11) a)** Define ferro-cement? What are its applications? [8]

b) Enlist the casting techniques of ferrocement and explain any one. [8]

OR

**Q12)a)** Write a note on Fibre Reinforced Polymeric meshes (FRP) along with merits and demerits. [8]

b) Write a short note on precast construction technique. [8]

