

Total No. of Questions : 10]

SEAT No. :

P3979

[4959]-1006

[Total No. of Pages : 3

B.E. (Civil Engineering)

c:ADVANCED CONCRETE TECHNOLOGY (Elective - I)

(2012 Course) (End Semester)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to candidates:

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Your answers will be valued as a whole.*
- 5) *Use of electronic pocket calculator is allowed.*
- 6) *Assume suitable data if necessary.*
- 7) *Use of IS code 10262,456 is not allowed.*

- Q1)** a) Write a short note on sulphur infiltrated concrete. **[4]**
b) What is copper slag? What is the effect of copper slag using as a fine aggregate on workability and strength of the concrete? **[6]**

OR

- Q2)** a) Write a short note on structural light weight concrete. **[4]**
b) What do you mean by quality assurance and quality control? Give the IS recommendations of quality assurance. **[6]**

- Q3)** a) Write a short note on ground penetration radar technique. **[4]**
b) Explain alkali aggregate reaction. State factors promoting and control of the reactions. **[6]**

OR

- Q4)** a) Write a short note on high performance concrete. **[4]**
b) Explain the step by step procedure involved in the design of pumpable concrete. **[6]**

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- Q5)** a) Explain the historical development of fiber reinforced concrete composite. [4]
- b) Enlist different metallic fibers. Explain any two properties in brief. [6]
- c) Explain in detail interaction between fiber matrix composite under cracked and uncracked condition. [6]

OR

- Q6)** a) What is aspect ratio? How it can influence the properties of composites? [4]
- b) Explain carbon fibers and glass fibers. [6]
- c) Define fiber reinforced concrete composite? Enlist different naturally occurring fibers. Explain any two in brief. [6]

- Q7)** a) What are the different properties of hardened FRC? Explain any two properties. [4]
- b) What precautions should be taken during mixing and casting of fiber reinforced concrete composite? [6]
- c) Explain the behavior of SFRC under compression, tension and flexure? [6]

OR

- Q8)** a) Write a short note on Glass fiber reinforced concrete composite. [4]
- b) Explain the quality control tests conducted for steel fiber reinforced concrete composites. [6]
- c) Describe the SIFCON material with reference to definition, structure properties and its application. [6]

- Q9)** a) Define ferrocement? Write advantages of ferrocement? [6]
- b) Explain open mould technique for ferrocement with merits and demerits. [6]
- c) Explain the properties and specifications of ferrocement material. [6]

OR

- Q10)**a) Enlist factors affecting ferrocement material in fresh and hardened state. Explain the effect of water cement ratio on properties of ferrocement material? [6]
- b) Explain skeletal armature method of ferrocement along with merits and demerits. [6]
- c) What are the different tests conducted on cement mortar as a ferrocement material? Explain any one in detail. [6]

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