

Total No. of Questions : 10]

SEAT No. :

P2115

[Total No. of Pages : 3

[5254]-506

B. E. (Civil Engineering)

ADVANCED CONCRETE TECHNOLOGY

(2012 Pattern) (Elective - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6, Q. 7 or Q. 8, Q.9 or Q. 10.
- 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 structural light weight 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) Explain how high performance concrete differs from high strength concrete. [4]
- b) Explain workability as a quality measure of green concrete On which factors workability of concrete depends? [6]
- Q3)** a) Explain in detail electrical methods of nondestructive testing method.[4]
- b) What are the factors affecting strength of concrete? Describe the influence of gel space ratio on strength of concrete. [6]

P.T.O.

OR

- Q4)** a) What are the different types of industrial waste materials useful for construction industry? Explain any one waste material based concrete in detail. [4]
- b) Explain the step by step procedure involved in the design of fly ash cement concrete mixes. [6]
- Q5)** a) What are the factors affecting the fiber interaction with matrix? [4]
- b) What are the different types of fibers used in the construction industry? Write the properties and application. [6]
- c) Write a short note on : [6]
- i) Carbon fibers.
- ii) Metallic fibers.

OR

- Q6)** a) Write a short note on: Fiber matrix interfacial bond. [4]
- b) Define fiber reinforced concrete composite? Enlist different naturally occurring fibers. Explain any two in brief. [6]
- c) Explain the basic concept of using fibers in the concrete composite. Explain the role of fibers improving the mechanical properties under tension and bending. [6]
- Q7)** a) Write a short note on Glass fiber reinforced concrete composite. [4]
- b) Explain the behavior of hardened steel fiber reinforced concrete under compression? [6]
- c) What precautions should be taken during mixing and casting of fiber reinforced concrete composite? [6]

OR

- Q8)** a) Write a short note on polymer fiber reinforced concrete composite. [4]
- b) Explain stress strain property and compressive strength properties of FRC. [6]
- c) Describe the SIFCON material with reference to definition, structure properties and its application. [6]

- Q9)** a) Explain the properties and specifications of ferrocement material. [6]
- b) Enlist factors affecting ferrocement material in fresh and hardened state. Explain the effect of water cement ratio on properties of ferrocement material? [6]
- c) Explain open mould technique for ferrocement with merits and demerits.[6]

OR

- Q10)**a) Define ferrocement ? What are its applications? [6]
- b) Explain how ferrocement differs than concrete? Write about tensile property of ferrocement. [6]
- c) Explain closed mould technique for ferrocement with merits and demerits.[6]

