

Total No. of Questions : 10]

SEAT No. :

P3860

[5561]-506

[Total No. of Pages : 3

B.E.(Civil)

ADVANCED CONCRETE TECHNOLOGY

(2015 Course) (Semester - I) (End Sem.) (Elective - I) (401004C)

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 Self curing concrete. [4]
b) Explain grading curves of aggregate. How grading of aggregates affect on properties of concrete. [6]

OR

- Q2)** a) What are the factors affecting strength of concrete? Describe the influence of gel space ratio on strength of concrete. [4]
b) Write a short note on- [6]
i) Jet cement concrete (Ultra Rapid Hardening Concrete).
ii) Ultra Light weight concrete.

- Q3)** a) Write a short note on green concrete. [4]
b) Write a short notes on nondestructive testing methods [6]
i) Stress wave propagation method
ii) Nuclear methods

OR

- Q4)** a) Write a short note on Geo polymer concrete. [4]
b) Write a short note on nondestructive testing method. [6]
i) Break off maturity method
ii) Ground penetration radar.

P.T.O.

- Q5)** a) What are the factors affecting the fiber interaction with matrix? [4]
- b) 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]
- c) What are the different types of fibers used in the construction industry? Write the properties and application. [6]

OR

- Q6)** a) Explain the historical development of fiber reinforced concrete composite. Explain the role of fibers improving the properties of concrete. [4]
- b) Enlist different metallic fibers. Explain their any two properties in brief. [6]
- c) Define the fiber reinforced concrete composite? Enlist different naturally occurring fibers. Explain any two in brief. [6]

- Q7)** a) Explain the behavior of hardened polymeric fiber reinforced concrete under flexure? [4]
- b) What precautions should be taken during mixing and casting for fiber reinforced concrete composite? [6]
- c) Describe the SIFCON material with reference to definition, structure properties and its application. [6]

OR

- Q8)** a) Explain stress strain property and compressive strength properties of FRC. [4]
- b) Explain the behavior of hardened steel fiber reinforced concrete under compression? [6]
- c) Which are the quality control tests conducted for steel fiber reinforced concrete composites. [6]

- Q9)** a) What are the different tests conducted on cement mortar as a ferrocement material? Explain any one in detail. [6]
- b) Explain closed mould technique for ferrocement with merits and demerits. [6]
- c) Explain how ferrocement differs than concrete? Write about tensile property of ferrocement. [6]

OR

- Q10)** 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 skeletal armature method of ferrocement along with merits and demerits. [6]

