

Total No. of Questions : 10]

SEAT No. :

P3240

[Total No. of Pages : 2

[5670] 506

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 and 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) What is heat of hydration? Explain the factors affecting heat of hydration. **[4]**

b) Explain in brief the comparison between natural river sand and manufactured sand used in making concrete. **[6]**

OR

Q2) a) Write short note on gel-space ratio. **[4]**

b) Write a short note on : **[6]**
i) Previous concrete.
ii) Ultra Light weight concrete.

Q3) a) Write a short note on structural light weight concrete. **[4]**

b) Write a short notes on nondestructive testing methods. **[6]**
i) Ground penetration radar.
ii) Nuclear methods.

OR

Q4) a) Write a short note high performance concrete. **[4]**

b) Write a short note on nondestructive testing method **[6]**
i) Stress wave propagation method.
ii) Break off maturity method.

P.T.O.

- Q5)** a) What are the different types of fibers used in the construction industry? [4]
b) Explain the historical development of fiber reinforced concrete composite. Explain the role of fibers improving the properties of concrete. [6]
c) Explain carbon fibers and glass fibers. [6]

OR

- Q6)** a) What is aspect ratio? How it can influence the properties of composites? [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 compression. [4]
b) Which are the quality control tests conducted for steel fiber reinforced concrete composites? [6]
c) What is SIFCON? Explain the procedure to develop this material and its applications. [6]

OR

- Q8)** a) What are the different properties of hardened FRC? Explain any two properties. [4]
b) Which are the constituent materials used in the SIFCON? Explain the physical properties of each material? [6]
c) What precautions should be taken during mixing and casting for fiber reinforced concrete composite? [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) Explain how ferrocement differs than concrete? Write about tensile property of ferrocement. [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 closed mould technique for ferrocement with merits and demerits. [6]

