Total No. of Questions : 10]

P4959

SEAT No. :

[Total No. of Pages : 3

[5059]-506

B.E. (Civil)

ADVANCED CONCRETE TECHNOLOGY

(2012 Pattern) (Elective - I)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q.1 or 2,Q. 3 or 4 Q. 5 or 6 ,Q.7 or 8,Q.9 or 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) Write a short notes on **[6]**

i) High strength concrete

ii) High performance concrete

OR

Q2) a) Write a short note on Green 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 Copper Slag as fine aggregate. **[4]**

b) Explain the step by step procedure involved in the design of self-curing concrete. **[6]**

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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) Write a short note on nondestructive testing methods **[6]**

i) Break off maturity method,

ii) Ground penetration radar

Q5) a) Write a short note on: Fibers with respect to volume, aspect ratio and orientation of firbers. **[4]**

b) Write a short note on: **[6]**

i) Carbon fibers

ii) Metallic fibers

c) Explain in detail interaction between fiber matrix composite under cracked and uncracked condition. **[6]**

OR

Q6) a) Write a short note on: Fiber matrix interfacial bond. **[4]**

b) Enlist different metallic fibers. Explain their any two properties 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 steel fiber reinforced concrete composite. **[4]**

b) Explain stress strain property and compressive strength properties of FRC. **[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: Applications of fiber reinforced concrete. **[4]**

b) Which are 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) What are the different tests conducted on cement mortar as a ferrocement material? Explain any one in detail. **[6]**

c) Explain open mould technique for ferrocement with merits and demerits. **[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]**