

Total No. of Questions : 10]

SEAT No. :

P3646

[Total No. of Pages : 2

[4859]-1006

B.E. (Civil Engineering) (End Semester)

**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) 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) Write a short note on Pervious concrete. [4]  
b) What are the factors affecting strength of concrete? Describe the influence of gel space ratio on strength of concrete . [6]

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

OR

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

*P.T.O.*

- Q5)** a) What are the factors affecting the fiber interaction with matrix?. [4]  
b) Explain the historical development of fiber reinforced concrete composite. Explain the role of fibers improving the properties of concrete. [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 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) Define fiber reinforced concrete composite. What are the different types of fibers used in the construction industry. Write the properties and application. [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 of fiber reinforced concrete composite? [6]  
c) Which are the quality control tests conducted for steel fiber reinforced concrete composites? [6]

OR

- Q8)** 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) Which are the constituent materials used in the SIFCON? Explain the physical properties of each material ? [6]

- Q9)** a) Explain how ferrocement differs than concrete? Write about tensile property of ferrocement. [6]  
b) Explain open mould technique for ferrocement with merits and demerits[6]  
c) Define ferrocement. What are its applications? [6]

OR

- Q10)** a) What are the advantages Ferrocement? [6]  
b) Explain the properties and specification of ferrocement material. [6]  
c) Explain closed mould technique for ferrocement with merits and demerits. [6]

