Total No. of Questions : 12]

SEAT No. :

P2644

[Total No. of Pages : 3

[5154]-13
B.E. (Civil)
ADVANCED CONCRETE TECHNOLOGY
(2008 Pattern) (Semester - I) (Elective - II)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***A) From Section I, Answer Q.No. 1 OR Q.No.2; Q.No.3 OR Q.No.4; Q.No.5 OR Q.No.6 and***
   B) From Section II, Answer Q.No.7 OR Q.No.8; Q.No.9 OR Q.No.10; Q.No.11 OR Q.No.12.
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures in the bracket indicate full marks.***
5) ***Electronic pocket calculator is permitted.***
6) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) Explain workability as a quality measure of green concrete. Enlist any five factors affecting workability of concrete. **[6]**

b) Write in detail how flaky and elongated particles of coarse aggregates affect the overall quality of concrete. **[6]**

c) Explain how water cement ratio is to be modified if concrete is to be manufactured in monsoon and in summer. **[6]**

OR

Q2) a) Explain the terms internal friction, bleeding and segregation in relation with performance of concrete in wet and hardened state. **[9]**

b) Write any five types of cement with their suitability. **[5]**

c) Explain the utility of particle size analysis in concrete making theory. **[4]**

Q3) a) Explain aerated concrete. Explain any one way for the manufacture of it. **[8]**

b) Discuss the importance and effects of water absorption and moisture content of lightweight aggregate concrete. **[8]**

OR

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Q4) a) What is meant by long term performance? Explain how it differs from compressive strength of concrete. **[8]**

b) Write in detail what do you mean by light weight concrete. Name any six naturally occurring light weight aggregates. **[8]**

Q5) a) Write notes on: i) Acoustic emission method ii) Pulse echo method. **[10]**

b) Enlist various non-destructive methods with their utility in brief. **[6]**

OR

Q6) a) What properties a high strength concrete should possess for long term performance? How particle packing is effective in high strength concrete? **[8]**

b) Write the limitations of following non - destructive tests: **[8]**

i) Windsor Probe test.

ii) Pulse echo method

SECTION - II

Q7) a) Differentiate between cracking, spalling and staining. **[6]**

b) Explain in detail the classification of artifical and natural fibers. **[8]**

c) Fiber matrix interfacial bond. **[4]**

OR

Q8) a) Explain: Quality control tests to ensure good performance of polymer concrete. **[6]**

b) Write a note on self compacting concrete. Write the various ways in which it is obtained. **[8]**

c) Write a note on relative fiber matrix stiffness. **[4]**

Q9) a) Write a note on Fibers with respect to Volume, aspect ratio and orientation of fibers. **[6]**

b) What are various types of fibers? Explain any two of them. **[6]**

c) What are the various applications of polymer concrete. **[4]**

OR

Q10)a) What are the basic properties of FRC which can be made use of in the design of structural properties? **[6]**

b) What is compact cube test? How it is useful in determining the efficiency of FRC in shear? **[6]**

c) Explain how steel fiber reinforced concrete behaves in shear. **[4]**

Q11)a) Write a note on fiber reinforced polymeric meshes (FRP) along with merits and demerits. **[8]**

b) Explain integral mould method of ferrocement along with its advantages. **[8]**

OR

Q12)a) Explain how ferrocement differs than concrete. Write about tensile property of ferrocement. **[8]**

b) Write the advantages and applications of ferrocement. **[8]**