Total No. of Questions : 12]

SEAT No. :

P3302

[Total No. of Pages : 3

[4959]-13

B.E. (Civil) (Semester - I)

ADVANCED CONCRETE TECHNOLOGY (Theory)

(2008 Pattern)

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

Instructions to the candidates:

1) ***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 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 to the right 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. On which factors workability of concrete depends? **[5]**

b) Explain slump cone test for determining workability. **[5]**

c) Explain the dry procedure of manufacturing of cement along with flow chart for the same. **[8]**

OR

Q2) a) Explain the effect of flaky and elongated particles on the properties of concrete. **[5]**

b) Explain aggregate alkali reaction. **[5]**

c) Explain aggregate crushing value test of aggregate including sample preparation and test procedure. **[8]**

Q3) a) Explain aerated concrete. Explain any one way for the manufacture of it. **[6]**

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b) Write in detail what do you mean by light weight concrete. Name any six naturally occurring light weight aggregates. Where light weight aggregate finds its use. **[10]**

OR

Q4) a) Write a detailed note on "step by step procedure of concrete mix design". **[8]**

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

Q5) a) Differentiate between cracking, spalling and staining. **[5]**

b) Enlist various non-destructive methods with their utility in brief. **[5]**

c) Write a note on "Pulse echo method". **[6]**

OR

Q6) a) What is the meaning of particle packing in concrete. How particle packing is effective in high density, high strength concrete and durability of concrete? **[8]**

b) Write notes on : **[2 × 4 = 8]**

i) Probe penetration

ii) Acoustic emission method

SECTION - II

Q7) Write notes on :

a) Factors affecting properties of FRC. **[6]**

b) Relative fibre matrix stiffness. **[6]**

c) Fibre matrix interfacial bond. **[6]**

OR

Q8) a) Write a note on self compacting concrete. **[6]**

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

c) Write a note on : SIFCON. **[6]**

Q9) a) Write a note on Fibers with respect to Volume, aspect ratio and orientation of fibers. **[8]**

b) Explain the various properties of hardened SCC. **[8]**

OR

Q10) a) Explain Stress strain property and compressive strength Properties of FRC. **[8]**

b) Explain in detail "Polymer impregnated concrete". **[8]**

Q11) a) Explain closed mould technique for ferrocement with merits and demerits. **[8]**

b) Write a note on cement mortar mix and reinforcement as constituents of ferrocement. **[8]**

OR

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

b) Explain open mould technique for ferrocement with merits and demerits. **[8]**

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