Total No. of Questions : 12]

SEAT No. :

P1513

[Total No. of Pages : 3

[4759]-13
B.E. (Civil)
ADVANCED CONCRETE TECHNOLOGY
(2008 Course) (Semester-I) (Theory) (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) ***Answer to the two sections should be written in separate answer books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the bracket indicate full marks.***
5) ***Electronic pocket calculator is permitted.***
6) ***Assume suitable data, if necessary.***

SECTION-I

Q1) a) Enlist the basic ingredients of portland cement and also state their ill effects if used in excess. **[5]**

b) Define Admixture. What are the two basic types of admixtures? Write the names of any five chemical admixtures. **[5]**

c) Explain the significance, sample preparation and test procedure of aggregate impact value. **[8]**

OR

Q2) a) What is grading of aggregate? How fineness modulus of aggregate is determined? What is meant by gap graded aggregates? **[8]**

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

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

P.T.O.

Q3) a) Write various ways for making light weight concrete. Write note on any one. **[6]**

b) Write in detail what do you mean by light weight concrete. Name any six. Naturally occurring light weight aggregates. **[10]**

OR

Q4) a) Write a detailed note on "Design of No Fines concrete mixes". **[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 "Acoustic emission method". **[6]**

OR

Q6) a) Explain particle packing theory. How particle is effective in high strength concrete? **[6]**

b) Write notes on: **[5 x 2 = 10]**

i) Probe penetration.

ii) Pulse echo method.

SECTION-II

Q7) Write notes on:

a) Classification of artificial fibres. **[5]**

b) Relative fibre matrix stiffness. **[5]**

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

d) Factors affecting properties of FRC. **[4]**

OR

Q8) a) Explain in detail the classification of artificial and natural fibres. **[6]**

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

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

Q9) a) Explain behaviour of SFRC in tension. **[6]**

b) Explain the various properties of hardened SCC. **[6]**

c) Applications of polymer concrete. **[4]**

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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