(5)

Total No. of Questions : 12]

SEAT No. :

P3026

[Total No. of Pages : 3

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

ADVANCED CONCRETE TECHNOLOGY (Theory)

(2008 Pattern)

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

Instructions to the candidates:

1) ***A) From Section 1, 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 right indicate full marks.***

5) ***Electronic pocket calculator is permitted.***

6) ***Assume Suitable data, if necessary.***

SECTION - I

Q1) a) Write a note on heat of hydration. **[5]**

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

c) Define flaky and elongated particle of aggregate. Explain how the laboratory sample is obtained to perform flakiness index and elongation index test on coarse aggregate. **[2+6]**

OR

Q2) a) Explain the effect of air entrainment on various properties of wet and hardened concrete. How air entrainment can be achieved? **[4+4]**

b) Differentiate between "segregation and bleeding". How the two affect the quality of concrete? **[5]**

c) Explain the importance of particle size analysis on the properties of concrete. **[5]**

Q3) a) Write in detail what do you mean by light weight concrete. Name any six naturally occurring light weight aggregates. **[5+3]**

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

P.T.O.

OR

Q4) a) Differentiate in detail compressive strength of concrete from its long term performance. **[8]**

b) Write a notes on Ultra rapid hardening concrete. What are its applications. **[8]**

Q5) a) Explain Rebound hammer test along with its limitations. **[5]**

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

c) Write note on ; Acoustic emmission method. **[6]**

OR

Q6) a) Explain particle packing density in relation with high strength concrete. **[6]**

b) Write main advantages of using high strength concrete. **[6]**

c) Enlist the parameters to be controlled for achieving required high performance. **[4]**

SECTION - II

Q7) a) Which properties of concrete are improved by adding polymers to concrete? Enlist areas where polymer concrete find its application. **[5+4]**

b) Explain in detail the classification of artificial and natural fibres. **[5+4]**

OR

Q8) Write notes on :

a) Quality control tests to ensure good performance of polymer concrete. **[5]**

b) Glass fibre reinforced concrete. **[4]**

c) SIFCON **[5]**

d) SFRC **[4]**

Q9) Write notes on :

a) Behaviour of SFRC in tension. **[4]**

b) Enlist different properties of hardened FRC. Explain any one. **[6]**

c) Explain the effect of volume, aspect ratio and orientation of fibres on FRC. **[6]**

OR

*Q10)*a) What are the basic properties of FRC which can be made use of in the design of structural elements? **[4]**

b) Explain batching, mixing, placing, compaction and finishing of fibre reinforced concrete. **[6]**

c) Write down the precautions to be taken while mixing, placing and compaction of fibre reinforced concrete. **[6]**

*Q11)*a) Explain Fibrous ferrocement. **[6]**

b) Explain the constituents of ferrocement with respect to cement mortar mix, skeletal steel. **[5]**

c) Explain how good quality cement mortar matrix can be prepared for ferrocement. **[5]**

OR

*Q12)*a) Explain skeletal armature method of ferrocement along with merits and demerits. **[6]**

b) Summarize tha major advantages of the ferrocement. **[4]**

c) Explain general procedure of construction in ferrocement. **[6]**