Code No: R100506

ADVANCED CONCRETE TECHNOLOGY

Time: 3 hours   Max.Marks:100

Answer any FIVE questions
All questions carry equal marks

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Note: No Code Book or data sheets are allowed.

1.a) Describe the mechanism of action of plasticizers with neat sketch. Mention any five Super plasticizers.
  b) Describe the role played by gypsum in the hydration reaction of cement.   [10+10]

2.a) Write a note on Alkali Aggregate Reaction. Discuss the factors promoting this reaction and suggest the methods for controlling the same.
  b) Write a note on the use of sea water for concrete preparation.   [10+10]

3.a) Explain the rheological behavior of concrete. What are the factors affecting the rheological behavior of concrete? Explain any three tests to determine the workability of concrete.
  b) What are the common defects in making concrete and how to overcome these defects?   [10+10]

4.a) Describe the importance of the quality of water used for concrete. How does increasing the quantity of water influence the properties of fresh and hardened concrete?
  b) Explain how you would determine the various elastic moduli for concrete?   [10+10]

5.a) What are the objectives of curing of concrete. Explain the different methods of curing of concrete.
  b) Explain the modern trends in concrete manufacturing.   [10+10]

6.a) Explain how segregation and bleeding can be controlled in making fresh concrete? Explain in detail about different methods of curing of concrete.
  b) Discuss the emerging trends in replacement of fine aggregates.   [10+10]

7.a) Discuss the step by step procedure for mix design of high performance concrete recommended by ACI committee.
  b) Explain how Entroy and Shacklok method differ from B.I.S. Method of mix design?   [10+10]

8.a) Write in detail about the following with practical implications on fresh concrete:
   i) Abrams Law
   ii) Gel/space Ratio
   iii) Maturity concept.
  b) Write short notes at what conditions the following concretes are used.
   i) Self compacting concrete
   ii) Geo polymer concrete
   iii) Smart Concrete   [10+10]

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