Note: (i) Attempt ALL questions.
    (ii) All questions carry Equal marks.
    (iii) Be Precise in your answer.

1. Attempt any four out of the following. \( 4 \times 5 = 20 \)
   a) Explain-
      1. Hydration of cement
      2. Heat of hydration
   b) Explain-
      1. Placing of concrete
      2. Underwater concreting
   c) Explain-
      1. Water cement ratio
      2. Gel space ratio
      3. Accelerated curing test
      4. Bond strength
   d) What is concrete mix design?
   e) What is mass concreting and the problems in mass concreting?

Attempt any four out of the following. \( 4 \times 5 = 20 \)

a) Explain absorption and moisture content?
b) Explain slump test and factors affecting it.
c) Explain grading of aggregates?
d) Define strength and factors affecting it?
e) What is modulus of elasticity and factors effecting modulus of elasticity?

3. Attempt any two out of the following. \((2 \times 10 = 20)\)
   a) Give a detail description on testing of aggregates?
   b) Write a short note on -
      1. soundness of aggregates
      2. bulking of aggregates
      3. modulus of elasticity
      4. aggregate abrasion value and its test
      5. aggregate crushing value
   c) Give a detail description about the type of cements and its uses.

4. Attempt any two out of the following. \((2 \times 10 = 20)\)
   a) Explain workability and factors affecting workability and its measurement.
   b) Explain curing of concrete and methods of curing concrete.
   c) Explain finishing and its types.

5. Attempt any two out of the following. \((2 \times 10 = 20)\)
   a) Explain-
      1. light weight concrete
      2. no fine concrete
      3. high density concrete
      4. sulphur infiltrated concrete
      5. fibre reinforced concrete
   b) Explain compaction in concrete and its types
   c) Explain
      1. compression test
      2. elasticity
      3. creep
      4. shrinkage
      5. durability in concrete