

Seat  
No.

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June 2013

महात्मा - 012

## Advance Concrete Technology

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Answer **any five** questions.

1. a) What do you mean by admixtures in concrete. Why it is essential sometime to mix them in concrete. 10  
b) Explain the test with which the optimum dose of superplasticizer is determined with following points : 10
  - i) Aim
  - ii) Procedure
  - iii) Figure of equipment
  - iv) Graph of time Vs Superplasticizer dosage
  - v) Result.
2. a) State and explain the factors affecting durability of concrete. 10  
b) Explain corrosion of Reinforcement and corrosion control in details. 10
3. a) Why target mean strength should be greater than minimum design specified strength?  
State relation between target mean strength of mix and minimum design strength of 90% probability. 4  
Table 1. (clause 2.2 IS 10262)  
Accepted proportion of low results.      t.

1 in 5	0.84
1 in 10	1.28
1 in 15	1.5
1 in 20	1.65
- b) What are the different methods for proportioning mix design and explain DOE method of concrete mix design. 10
- c) Explain the factor affecting choice of mix - design. 6

4. a) Match the following and rewrite in Answer book. 6
- |                              |  |
|------------------------------|--|
| 1) Polymer concrete          | A) Used for insulating purpose.                          |
| 2) High Density concrete     | B) High tensile strength                                 |
| 3) aerated concrete          | C) Used for rapid repair of damaged air field pavements. |
| 4) High strength concrete    | D) Useful in tall structures.                            |
| 5) Light Weight Concrete     | E) Prestress concrete Bridges                            |
| 6) Fiber Reinforced concrete | F) Used as biological. Shields in nuclear Reactors.      |
- b) Distinguish between polymer cement concrete and polymer concrete. 4
- c) Explain in detail. High strength concrete and list the methods of making it. 10
5. a) How is mixing efficiency of mixer assessed? Explain the influence of mixing time on strength of concrete. 10
- b) Explain Ready mixed concrete and state the advantages, and limitations. 10
6. a) Explain design of form work with respect to load on formworks design criterion and design procedure. 10
- b) What is precast concrete & What are its applications. Discuss the various types of precast concrete wall and floor. 10
7. Explain the following : 20
- i) grout, grouting and grouted concrete.
  - ii) concrete coating and surface treatments
  - iii) Fire resistance of concrete.
  - iv) Sulfate Attack.

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