

22305

22223

3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (7) Write the question number properly. Do not change it.

Marks

1. Attempt any FIVE of the following:

10

- a) Define hydration of cement.
- b) List four Bogue's compounds of cement.
- c) Define water absorption of aggregate.
- d) State Duff Abraham's W/C ratio law.
- e) Write any four properties of high strength concrete.
- f) State any four methods of concrete mix design.
- g) State any two purposes of using admixture in concrete.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Compare setting and hardening of cement.
 - b) State any four effects of excess on silt on properties of concrete.
 - c) Compare aggregate crushing test and aggregate impact test.
 - d) Explain the effects of sea water on properties of concrete.
- 3. Attempt any THREE of the following:** **12**
- a) Enlist any four works done by supervisor on site.
 - b) Write any four preventive measures which can be taken on site to avoid bleeding of concrete.
 - c) Explain any four major steps to be taken to achieve durability of concrete on site.
 - d) State any four objectives of mix design.
- 4. Attempt any THREE of the following:** **12**
- a) State the working principle of rebound hammer test in detail.
 - b) State any four requirements of good form work.
 - c) Write the precautions to be taken while transporting concrete on site.
 - d) Explain the effect of shape of aggregate on workability and strength of concrete.
 - e) State the needs for waterproofing.
- 5. Attempt any TWO of the following:** **12**
- a) Draw a sketch of column formwork. Describe the procedure to avoid segregation of concrete at the bottom of column.
 - b) Illustrate the procedure for conducting ultrasonic pulse velocity test and write specifications to decide quality of concrete.
 - c) State the effects of under compaction and over compaction on properties of concrete.

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[3]

Marks

6. Attempt any TWO of the following:

12

- a) State the procedure to join old concrete and new concrete with a neat sketch.
 - b) Discuss any three advantages and disadvantages of R.M.C. (Ready Mix Concrete)
 - c) Plan the procedure for vacuum dewatering system which is used for industrial flooring. State its two advantages.
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