

313322

25226

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 answer 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.

Marks

1. **Attempt any FIVE of the following:** **10**
- a) List four physical properties of OPC.
 - b) Define bulk density of aggregate.
 - c) State two uses of low heat cement.
 - d) Enlist four Bogue's compounds with their formula.
 - e) Define:
 - i) Flakiness Index
 - ii) Elongation Index.
 - f) Define creep of concrete.
 - g) State any four admixtures used in concrete.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- a) Explain the procedure for determination of compressive strength of cement in laboratory.
 - b) State any four field tests of cement.
 - c) Explain the procedure of determination of Impact value.
 - d) Explain in detail classification of aggregate according to size and shape.
- 3. Attempt any THREE of the following: 12**
- a) Explain two types of joints in concrete.
 - b) State the necessity of supervision of concreting operations.
 - c) State the two importance of NDT of concrete. Enlist the methods of NDT.
 - d) Explain any two properties of harden concrete.
- 4. Attempt any THREE of the following: 12**
- a) Differentiate between retarding admixture and accelerating admixture. (Any four points)
 - b) Explain Ready Mix Concrete. Write two uses of RMC.
 - c) Explain any two mineral admixture.
 - d) Explain the properties and application of high performance concrete.
 - e) Define Concrete Mix Design. Write three objectives of concrete mix design.
- 5. Attempt any TWO of the following: 12**
- a) Define workability. Explain stepwise procedure of compaction factor test with neat sketch.
 - b) Explain step by step procedure of concrete mix design by IS method as per IS-10262.
 - c) State water cement ratio law. Explain significance of water cement ratio.

6. Attempt any TWO of the following:**12**

- a) Calculate the fineness modulus of a sample using following data. Total weight of sample is 1000 gm.

Sieve	4.75	2.36	1.18	600	300	150	Pan
Size	mm	mm	mm	μ	μ	μ	—
Weight retained (gm)	75	170	280	225	100	110	40

- b) Define curing. Explain four methods of curing.
- c) Draw sketch of formwork for beam with neat Labelling.
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