

22305

23242

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.

Marks

- 1. Attempt any FIVE of the following:** **10**
- a) Enlist four Bouge's compound of cement with formula.
- b) Enlist any four field tests on cement.
- c) State any four requirements of good fine aggregates.
- d) Enlist various operations in concreting in sequence.
- e) Define : concrete mix design.
- f) Enlist any two methods of transportation of concrete.
- g) Define : Admixture.

P.T.O.

2. Attempt any THREE of the following: 12

- a) Explain the procedure to determine standard consistency of cement with neat labeled sketch.
- b) Classify the aggregate based on its size and shape.
- c) Calculate fineness modulus for the given data of fine aggregate.
Total weight of C.A. = 1000 gm.

Sieve size in mm	4.75	2.36	1.18	600 μ	300 μ	150 μ	Pan
Wt. retained in gm	20	75	210	274	305	106	10

- d) Illustrate the procedure to determine impact value of coarse aggregate.

3. Attempt any THREE of the following: 12

- a) Illustrate step wise procedure of compaction factor test with sketch.
- b) Explain two causes of each :
 - i) Segregation
 - ii) Bleeding of concrete
- c) Explain the necessity of supervision for concreting operations.
(any four)
- d) Explain workability and state factors affecting workability.

4. Attempt any THREE of the following: 12

- a) Explain the importance of water / cement ratio in the concrete mix.
- b) State four objectives of concrete mix design .
- c) Explain fiber reinforced concrete.
- d) State any four purposes of admixtures.
- e) Enlist any four precautions to be taken during cold weather concreting.

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

- a) Explain the laboratory procedure to determine the compressive strength of concrete cubes as per IS 516-1959 w.r.to following points :
 - i) Preparation of test specimen
 - ii) Procedure of testing
 - iii) Interpretation of results
- b) Explain the need of non-destructive testing of concrete. List the various methods of NDT.
- c) Explain the ultrasonic pulse velocity test and techniques of measuring pulse velocity through concrete.

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

- a) Explain the procedure for joining old and new concrete work, also state any two material used or filling concrete joints.
 - b) Write four requirements of a good form work and draw a sketch showing c/s of formwork for R.C.C. column.
 - c) Illustrate curing of concrete, enlist any four types of curing methods and explain any one of them.
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