

22305

11920

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) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) 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) Define fineness of cement.
 - b) State any four properties of fine aggregate.
 - c) State water cement ratio law.
 - d) State principle of ultrasonic pulse-velocity test on concrete.
 - e) Enlist any two methods of transportation of a concrete.
 - f) List any two precautions to be taken in cold weather concreting.
 - g) State the meaning of 43 grade and 53 grade cement.

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) Explain procedure to find specific gravity of the fine aggregate in laboratory.
- 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) Explain flakiness index and elongation index in detail.

3. Attempt any THREE of the following: 12

- a) Calculate quantity of water to be added for casting cubes in laboratory by 12.5 kg cement, if w/c ratio 0.45.
- b) Suggest the minimum grade of concrete for following exposure condition.
 - (i) RCC work
 - (ii) Water retaining structure.
 - (iii) Sea water construction
 - (iv) Prestressed concrete.
- c) Draw concreting operation chain in sequence.
- d) Describe the procedure for determination of workability by compaction factor method.

- 4. Attempt any THREE of the following:** **12**
- a) Define bleeding. Suggest any two ways by which bleeding can be avoided.
 - b) Write any four factor affecting concrete mix design.
 - c) Explain the significance of water reducing admixture in concrete with respect to properties of concrete.
 - d) Write the procedure of vacuum dewatering concreting for construction of floors.
 - e) State four points of differences between reinforced concrete and fibre reinforced concrete.
- 5. Attempt any TWO of the following:** **12**
- a) Explain the method of concrete mix design procedure by I.S. method as per IS - 10262.
 - b) Explain the procedure to determine compressive strength of concrete in lab.
 - c) State the importance of NDT. and state working principle of Rebound hammer.
- 6. Attempt any TWO of the following:** **12**
- a) Classify the methods of curing of concrete with detail explanation of any one method.
 - b) State the requirement of good form work and state the stripping time of form work as per IS 456-2000.
 - (i) Slab
 - (ii) Beam
 - (iii) Columnwith labelling on sketch.
 - c) Explain the procedure for joining old and new concrete work, also state any two material used or filling concrete joints.
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