

17504

21718

3 Hours / 100 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.

Marks

1. (A) Attempt any THREE of the following :

12

- (a) State test procedure to find initial setting time of cement.
- (b) Explain with neat sketch the phenomenon “Bulking of Sand”.
- (c) State classification of aggregate with respect to shape & size.
- (d) State max. water cement ratio for four different grades of concrete as per IS 10262-1982.

(B) Attempt any ONE of the following :

06

- (a) State any four field test of cement. State the precaution to be taken while storing cement at site.

- (b) A 2000 gms of air dry coarse aggregate sample is sieved through number of sieves. The test observations are recorded as below.

Find fineness modulus.

I.S. Sieve	40 mm	20 mm	10 mm	4.75 mm	2.36 mm	1.18 mm
Residue (in gms)	40	820	440	400	200	40

I.S. Sieve	600 micron	300 micron	150 micron
Residue (in gm)	00	40	20

2. Attempt any FOUR of the following :

16

- Enlist the Bogue's compound with formula.
- List four types of cement and state their field application.
- Explain the procedure to determine silt content of sand sample.
- Explain the procedure to determine the crushing values of aggregate.
- State the necessity of supervision for concreting operation.
- Define impermeability of concrete. Enlist factors affecting it.

3. Attempt any FOUR of the following :

16

- Define Impact value, Abrasion value, Crushing value & Flakiness Index of coarse aggregate.
- Enlist four requirements of good fine aggregate.
- Define workability of concrete. Explain workability of concrete with slump test.
- State how compressive strength is determined by using Rebound Hammer.
- Draw a neat sketch of Formwork for R.C.C. column footing.

4. (A) Attempt any THREE of the following :

12

- (a) Explain in brief IS Method of Concrete Mix Design.
- (b) Write the precautions to be taken while transporting the concrete.
- (c) State advantages & disadvantages of Volume Batching.
- (d) Explain in brief 'Super plasticizers'.

(B) Attempt any ONE of the following :

06

- (a) Define compressive strength of concrete. Write the procedure for determination of compressive strength of concrete cubes.
- (b) Explain different methods of curing of concrete.

5. Attempt any FOUR of the following :

16

- (a) Explain in brief procedure for determination of compaction factor of concrete in Laboratory.
- (b) Define Segregation & Bleeding.
- (c) State the procedure for joining old & new concrete.
- (d) Enlist the effects of HOT weather & COLD weather on concrete.
- (e) Enlist the various concrete operation in sequence and explain any one in detail.
- (f) Write the purpose of admixture. State any four admixtures used in concrete.

P.T.O.

6. Attempt any FOUR of the following :**16**

- (a) Compare between tilting & non-tilting types of mixer.
 - (b) State necessity of water-proofing. Enlist methods of water-proofing.
 - (c) State advantage and limitation of RMC.
 - (d) Explain in brief 'Fibre Reinforced Concrete'.
 - (e) State the precaution taken during Hot Weather concrete.
 - (f) Describe the following :
 - (i) High Performance Concrete
 - (ii) Light Weight Concrete
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