313322

12526
3 Hours / 70 Marks Seat No. | | | | | | | | |

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 different Bogue's compounds in cement.

b) Define fine aggregate and coarse aggregate.

c) Define Workability.

d) Define Batching in concrete operations.

e) Enlist the different types of material used for form work.

f) State any two advantages of using admixtures.

g) Define lightweight concrete.

P.T.O.

Marks

2. Attempt any THREE of the following: **12**

a) State any four field tests on cement.

b) Define cement and state its main ingredients.

c) State any four field applications of rapid hardening cement.

d) State the requirements of good aggregates.

3. Attempt any THREE of the following: **12**

a) State the factors affecting workability.

b) Explain the significance of water – cement ratio.

c) Explain segregation and bleeding in concrete.

d) State the properties of hardened concrete

4. Attempt any THREE of the following: **12**

a) State four precautions to be taken during placing of concrete.

b) Define formwork and state removal time of formwork for slab and beam as per IS 456-2000.

c) Define admixture in concrete. State the different types of admixtures used.

d) Enlist different cementitious admixtures used in concrete and explain any one.

e) Define self-compacting concrete (SCC). State its advantages.

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

a) Explain step by step procedure of concrete mix design as per IS 10262-2009.

b) Explain the slump cone test with a neat sketch.

c) Explain the laboratory procedure to determine the compresive strength of concrete cubes with reference to following points:–

i) Preparation of test specimen

ii) Procedure of testing

iii) Interpretation of results.

Marks

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

a) Determine the fineness modulus of the fine aggregate using following data :–

Weight of sample = 1 kg.

Sieve size (mm)	4.75	2.36	1.18	0.6	0.3	0.15	Pan
Weight retained (gm)	85	175	280	220	135	90	15

b) A construction site faces problems of concrete segregation and bleeding. Suggest suitable remedial measures with reasons.

c) Suggest relevant method of transportation of concrete used for construction in following situation :–

i) Concreting in Hilly areas.

ii) Concreting of high rise building.

iii) Concreting under water.