22305

12425

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

Instructions – (1) All Questions are *Compulsory.*

(2) Illustrate your answer with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

(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) Why gypsum is used during the manufacturing of concrete?

b) Mention names of various tests conducted on aggregate.

c) State the grade of concrete with its proportion as per IS 456 – 2000.

d) State the yield of concrete.

e) Define the term 'Batching of concrete'. State its methods.

f) State any two types of Admixture of concrete with its purpose.

g) Define the term 'Adulteration of cement'.

Marks

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

a) State the different types of special cement with its suitability.

b) State the importance of grading of aggregates in concreting.

c) Differentiate between segregation and bleeding.

d) State the requirements of good form work (any four).

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

a) Explain Duff Abraham's w/c law with neat graph.

b) State any four objective of mix design.

c) State any four golden rules of quality control.

d) Explain the phenomenon of bulking of sand and mention its ill effect.

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

a) State the precautions to be taken while placing of concrete.

b) Explain 'Prestressed Concrete' with its limitations.

c) State the physical properties of Bogue's compound.

d) State the factors of affecting the properties of concrete.

e) Following data is available for concrete mix design. Determine the quantity of Cement, Fine Aggregate (FA) and Coarse Aggregate (CA) per M^3 of concrete.

i) Ratio of fine aggregate to total aggregate = 0.3

ii) Water content = 300 kg.

iii) Amount of entrapped air = 3%

iv) Specific gravity of cement = 3.15

v) Specific gravity of FA = 2.6 and CA = 2.8

vi) Water/Cement ratio = 0.4

Marks

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

a) List out the factor affecting the workability of concrete (Any 4). State the procedural steps of slump cone test.

b) State the limitations of N.D.T. State procedural steps of ultrasonic pulse velocity test.

c) State the objective or necessity of curing. Explain any one method of curing in brief.

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

a) List out the different methods of concrete mix design. Explain any one.

b) Explain the abrasion resistance test of aggregate with permissible value and its formula.

c) Explain hot weather concreting? State the effects of hot weather on concreting (any four).