Total No. of Questions—**12**] [Total No. of Printed Pages—**4**

Seat No.	

[4757]-106

S.E. (Civil Engineering) (Second Semester) EXAMINATION, 2015
CONCRETE TECHNOLOGY
(2008 PATTERN)

Time : Three Hours **Maximum Marks : 100**

N.B. :— (*i*) Answer Q. No. **1** *or* Q. No. **2**, Q. No. **3** *or* Q. No. **4**, Q. No. **5** *or* Q. No. **6** from Section I and Q. No. **7** *or* Q. No. **8**, Q. No. **9** *or* Q. No. **10**, Q. No. **11** *or* Q. No. **12** from Section II.

(*ii*) Answers to the two Sections should be written in separate answer-book.

(*iii*) Neat diagrams must be drawn wherever necessary.

(*iv*) Figures to the right indicate full marks.

(*v*) Your answers will be valued as a whole.

(*vi*) Use of electronic pocket calculator is allowed.

(*vii*) Assume suitable data if necessary.

(*viii*) Use of IS code 10262,456 is not allowed.

SECTION I

1. (*a*) List various types of cement. Explain any *two* briefly. [6]

(*b*) Write a short note on classification of Aggregates. [6]

(*c*) Write a short note on fly ash. [5]

P.T.O.

Or

2. (*a*) What are the minor compounds in Portland cement ? State the significance of each compound. [6]

(*b*) Explain Alkali-aggregate reaction. State factors promoting and control of the reaction. [6]

(*c*) What are the different functions of admixtures ? [5]

3. (*a*) What are different methods to measure workability ? Explain any *one* in detail. [6]

(*b*) State and explain various operations involved during the concreting from mixing to finishing of concrete surface. [6]

(*c*) Write short notes on : [5]

(*i*) Shrinkage

(*ii*) Swelling.

Or

4. (*a*) Define workability. Explain the factors affecting workability. [6]

(*b*) Write short notes on : [6]

(*i*) Bleeding

(*ii*) Segregation.

(*c*) Explain in detail the importance of compaction of concrete. What are the different methods of compaction ? [5]

5. (*a*) What do you mean by concrete mix design ? What are the objectives in mix design ? [6]

(*b*) Explain mix design by IS recommended guidelines in detail. [6]

(*c*) Define Nominal mix and Design mix. [4]

Or

6. (*a*) Explain the factors governing the selection of mix proportions. [6]

(*b*) Explain DOE method of mix design in brief. [6]

(*c*) What do you mean by : [4]

(*i*) Mean strength

(*ii*) Variance

(*iii*) Standard deviation

(*iv*) Coefficient of variation.

SECTION II

7. (*a*) Enlist basic members required for formwork. [4]

(*b*) Write short notes on : [12]

(*i*) Rebound hammer test

(*ii*) Pullout test

(*iii*) Ultrasonic pulse velocity test.

Or

8. (*a*) What are the test cores ? What are the advantages and disadvantages of test cores ? [4]

(*b*) Explain briefly principles of design of formwork. [6]

(*c*) Write short notes on : [6]

(*i*) Impact echo test

(*ii*) Marsh cone test.

9. Write short notes on : [16]

(*i*) Light weight concrete

(*ii*) Self-compacting concrete

(*iii*) Ready Mixed concrete

(*iv*) Ferro cement.

Or

10. Write short notes on : [16]

(*i*) Fibre reinforced concrete

(*ii*) High Density concrete

(*iii*) Roller compacted concrete

(*iv*) Underwater concreting.

11. (*a*) Explain various reasons of cracking of hardened concrete. [6]

(*b*) Write short notes on : [12]

(*i*) Shotcrete

(*ii*) Evaluation of cracks

(*iii*) Sulphate attack on concrete.

Or

12. (*a*) State and explain factors affecting permeability of concrete. [6]

(*b*) Explain process of preparation of surface for repairs along with its importance. [6]

(*c*) Write short notes on : [6]

(*i*) Carbonation of concrete

(*ii*) Repair of stitching.