Seat No.	

[4262]-109

S.E. (Civil) (II Sem.) EXAMINATION, 2012

CONCRETE TECHNOLOGY

(2008 PATTERN)

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

N.B. :— (*i*) Answer *three* questions from Section I and *three* questions from Section II.

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

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

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

(*v*) Assume suitable data, if necessary.

SECTION I

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

(*b*) What is bulking of sand ? Explain the field test to determine the extent of bulking of sand. [6]

(*c*) What are the different types of mineral admixtures ? Explain any *two* mineral admixtures. [6]

Or

2. (*a*) Write flowchart for the manufacturing of cement by dry process and wet process. [6]

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

(*c*) What are the functions and types of admixtures ? [6]

3. (*a*) Explain water-cement ratio. Draw graphs giving relationship between w/c ratio and compressive strength. [6]

(*b*) Define shrinkage of concrete and give its classification. Write a short note on "Carbonation Shrinkage". [6]

(*c*) State advantages and disadvantages of pull-out test. [4]

Or

4. (*a*) Define workability. State the factors affecting workability. Describe any *one* in detail. [6]

(*b*) Write short notes on :

(*i*) Bleeding

(*ii*) Segregation. [6]

(*c*) Describe the role of aggregate in creep of concrete. [4]

5. (*a*) What do you mean by nominal mix, standard mix and design mix ? [6]

(*b*) Write in general step by step procedure for concrete mix design. [6]

(*c*) Explain the factors affecting the choice of mix design. [4]

Or

6. (*a*) State the different methods of mix design. Explain DOE method of mix design in detail. [6]

(*b*) What do you mean by :

(*i*) Mean strength

(*ii*) Variance

(*iii*) Standard deviation

(*iv*) Coefficient of variation. [4]

(*c*) Write a note on 'Absolute Volume', in respect of mix design to calculate volume of different ingredients of concrete. [6]

SECTION II

7. (*a*) Explain 'pulse velocity method' for determining concrete properties. [6]

(*b*) Write a short note on Analysis of Fresh Concrete. [6]

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

Or

8. (*a*) State the various types of non-destructive tests carried on hardened concrete. Explain Rebound Hammer test with its limitation. [6]

(*b*) Explain 'Marsh Cone Test' in detail. [6]

(*c*) Write short notes on :

(*i*) Inpact echo test

(*ii*) Basic members required for formwork. [6]

9. (*a*) What is self-compacting concrete ? What are advantages and disadvantages of it ? [6]

(*b*) Write short notes on :

(*i*) High density concrete

(*ii*) Polymer concrete. [6]

(*c*) What is ready-mix concrete ? [4]

Or

10. (*a*) Write a short note on Fibre Reinforced Concrete. [6]

(*b*) State the advantages of light-weight concrete. [6]

(*c*) What are the effects of hot weather on concreting ? [4]

11. (*a*) Write short notes on :

(*i*) Shotcrete

(*ii*) Sulphate attack on concrete

(*iii*) Evaluation of cracks. [6]

(*b*) Explain various reasons of cracking of hardned concrete. [6]

(*c*) Write a note on corrosion of reinforcement and its remedial measures. [4]

Or

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

(*b*) Write notes on :

(*i*) Chloride attack on concrete

(*ii*) Carbonation of concrete. [6]

(*c*) Explain 'Repair by Stitching'. [4]