Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 31019

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Seventh Semester

Civil Engineering

080100051 — CONCRETE TECHNOLOGY

(Regulation 2008)

Time : Three hours Maximum : 100 marks

(Relevant Tables and Charts for mix design are permitted)

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Elongation Index.

2. Name the instruments used to find setting time, fineness and soundness of cement.

3. What are the various purposes for which admixtures are used in concrete?

4. What is a Portland pozzolana cement? State its applications.

5. What are the various inputs required to design a mix by BIS method?

6. Define 'Useful work' with reference to workability of concrete.

7. What is meant by High strength concrete?

8. How does silica fume help in reducing bleeding?

9. What are the ingredients for light weight concrete?

10. Write the few name of polymer which is used for making polymer concrete

PART B — (5 × 16 = 80 marks)

11. (a) What is unsoundness in cement? What causes it and what is its effect? How is it determined in the laboratory? Give the BIS specifications for the same.

Or

(b) State and explain the various characteristics of aggregates that influence the quality of concrete.

12. (a) Explain the purpose of using accelerators and retarders. What are the various materials used? State their applications and limitations.

Or

(b) Describe the use of Fly ash and metakaoline in concrete as admixtures bringing out clearly their application and limitations.

13. (a) (i) Briefly explain how the inspection and testing of concrete in existing structures can be carried out. (10)

(ii) What are the characteristic requirements to be considered in the mix design of pumpable concrete? (6)

Or

(b) Design a M_{30} grade concrete with compaction factor of 0.90 by IS code method for moderate exposure and good quality control conditions using 20mm coarse aggregate which conforms to IS 383 grading. Specific gravity of cement, fine and coarse aggregates is 3.15, 2.65 and 2.60. respectively. Water absorption of coarse and fine aggregates is 0.50% and 1.0% respectively. Natural moisture content and grading zone of fine aggregate are 1.0% and zone III respectively. Assume suitable data if found necessary.

14. (a) Define the term workability and how it can be measured? Explain any one method with neat sketches.

Or

(b) What are the tests available in hardened concrete? Explain flexural and compressive strength in detail.

15. (a) Discuss in detail about production of high performance concrete and also explain their properties.

Or

(b) Write detailed note on following :

(i) High strength concrete. (8)

(ii) Fibre reinforced concrete. (8)
