9. (a) Explain the design aspects of aerated concrete. 10

(b) Explain the various methods of polymer concrete. 10

Roll No. .....

23725

M. Tech. 1st Semester Civil Engg. (Computer Aided Structural Engg.) CBCS Scheme Examination – January, 2023

ADVANCED CONCRETE TECHNOLOGY

Paper : 21MTCASE2C5

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

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*. All questions carry equal marks. Assume missing data if any suitably.

1. (a) Why is Elastic Moduli Important for Concrete ? $2.5 \times 8 = 20$

(b) What are the Methods for Control of Bleeding ?

(c) What is Designed Mixes ?

(d) What are the principal properties of "good" concrete ?

(e) What is polymer concrete ?

(f) Define various aspects of pumping concrete.

(g) How the concrete strength has measured ?

(h) List various non-destructive methods.

SECTION – A

2. (a) Describe the process of manufacture of cement by wet process. 10

(b) What are the various factors which affect the workability of concrete ? 10

3. (a) Describe the importance of the quality of water used for concreting. 10

(b) Explain in detail of any three tests for Fresh Concrete. 10

SECTION – B

4. Design the concrete mix for grade M30 with suitable conditions. Find the quantities of constituents of the mix for a bag of cement. 20

5. (a) Explain the factors that influence the choice of mix design. 10

(b) Explain in detail about the statistical quality control and acceptance criteria of concrete. 10

SECTION – C

6. (a) What is Cathodic protection and when is it applied ? 10

(b) What precautions can be taken to ensure good quality concrete in coastal structures ? 10

7. (a) Explain the factors which influence corrosion ? 10

(b) What are the various types of chemical attacks encountered by concrete ? 10

SECTION – D

8. (a) How can high-strength concrete be classified ? Explain. 10

(b) What are the basic properties of fibre-reinforced concrete which can be advantageously made use of in the design of structural elements ? 10