M. Tech (Civil Engineering-Computer Aided Structural Engg) 1st Semester CBCS Scheme Examination, November-2023

ADVANCED CONCRETE TECHNOLOGY

Paper–21MTCASE21C5

Time allowed : 3 hours] *[Maximum marks : 100*

Note : Question 1 is compulsory. Attempt **one** question from each Section. All questions carry equal marks. Assume missing data, if any, suitably.

1. (a) Write any four properties of fresh concrete.
   (b) What is meant by controlled concrete?
   (c) Distinguish between plasticizers and super plasticizers.
   (d) What are the principal properties of "good" concrete?
   (e) What is self-compacting concrete?
   (f) What are the Requirements of concrete mix design as per BIS?
   (g) How does freeze-thaw damage occur?
   (h) List various non-destructive methods.

Section–A

2. (a) What are the stages of transformation of fresh concrete to hardened concrete? 10
   (b) What are the various factors which affect the workability of concrete? 10

3. (a) How does increasing the quantity of water influence the properties of fresh and hardened concrete? 10

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

Section–B

4. Describe the procedure in adopting IRC method of concrete mix design. 20

5. Explain the procedure of selection of constituent materials of concrete. 20

Section–C

6. (a) What are the reasons for the cracking of concrete and how does it affect durability? 10

(b) What do you understand by carbonation of concrete? How is it tested? 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) What type of equipment is used for placing concrete? In what way does this equipment avoid segregation during placing? 10

(b) Explain the properties of polymer impregnated Concrete. 10

9. (a) Describe the method of manufacturing of high density concrete. 10

(b) List the differences between polymer-impregnated concrete, polymer-modified concrete and polymer concrete. 10