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

Question Paper Code: 49108

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Elective

Civil Engineering

14UCE908 - CONCRETE TECHNOLOGY

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The chemical compound responsible for ultimate strength of cement is

   (a) Di-calcium silicate (b) Tri calcium aluminate
   (c) Gypsum (d) Calcium chloride

2. Loss angel test is to test the _____value of the coarse aggregate.

   (a) crushing strength (b) abrasion
   (c) toughness (d) elongation index

3. An aggregate is said to be flaky if its least dimension is less than

   (a) 1/5th of mean dimension (b) 2/5th of mean dimension
   (c) 3/5th of mean dimension (d) 4/5th of mean dimension

4. The increased cohesiveness of concrete, makes it

   (a) less liable to segregation (b) more liable to segregation
   (c) more liable to bleeding (d) more liable for surface scaling in frosty weather

5. The maximum size of coarse aggregate to be used in RCC as per IS456:2000.

   (a) 20 mm (b) 25 mm (c) 30 mm (d) 35 mm

6. Nominal mix concrete may be used for concrete of grade _____ and lower.

(a) M10 (b) M15 (c) M20 (d) M25

7. Specified compressive strength of concrete is obtained from cube tests at the end of _____ days.

(a) 7 days (b) 14 days (c) 28 days (d) 56 days

8. Workability of concrete for a given water content is good if the aggregates are

(a) rounded (b) angular (c) square (d) flaki

9. What is the maximum density value of light weight concrete?

(a) 1850 kg/m^3 (b) 1950 kg/m^3
(c) 2000 kg/m^3 (d) 2050 kg/m^3

10. Concrete in the structural member has to pass through

(a) plastic stage (b) hardened stage
(c) both (a) and (b) (d) neither (a) nor (b)

PART - B (5 x 2 = 10 Marks)

11. What is grade of cement?

12. What are admixtures?

13. What is retarder?

14. Define Young's modulus.

15. Define ferro-cement.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Explain the test procedure of crushing strength of coarse aggregate used in concrete. (8)

(ii) What do you mean by aggregate impact value? How it is determined in the laboratory. (8)

Or

(b) List the various types of cements as per Indian standard. Brief their uses. (16)

17. (a) What are accelerators and super plasticisers? Explain its use with examples. (16)

Or

(b) Write a short notes on (i) GGBS (ii) Silica fume (iii) Fly ash (iv) Metakaoline. (16)

18. (a) Explain the procedure of IS method of mix design. (16)

Or

(b) Design a concrete mix for M25 grade concrete using IS recommended guidelines. Assume necessary data. (16)

19. (a) (i) Write down the procedure of flexural strength test on concrete beam. (8)

(ii) Brief about compressive strength test on concrete cube. (8)

Or

(b) (i) Define modulus of elasticity. How will you determine the modulus of elasticity of concrete? (8)

(ii) How will you determine the workability of concrete using slump test? (8)

20. (a) What is Fibre reinforced concrete? Give its application. (8)

(b) How light weight concrete is produced? Brief its properties and suitable applications. (8)

Or

(b) Write a note on various types of polymer concrete. (16)