Total No. of printed pages = 7

END SEMESTER EXAMINATION – 2021

Semester : 5th (New)

Subject Code : CT-502

CONCRETE TECHNOLOGY

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Instruction :

- *All* questions of PART–A and PART–B are compulsory.

PART – A

Marks – 25

Questions in PART–A carry 1 (one) mark each.

Answer the following questions as directed : 1×25=25

Choose the correct answers :

1. The breaking up of cohesion in a mass of concrete is called

   (a) workability (b) bleeding

   (c) segregation (d) creep

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2. Segregation in concrete results in

(a) honeycombing (b) porous layers

(c) surface scaling (d) All of these

3. The strength and durability of concrete depends upon

(a) size of aggregates

(b) grading of aggregates

(c) moisture content of aggregates

(d) All of the above

4. The cement concrete, from which entrained air and excess water are removed after placing it in position, is called

(a) vacuum concrete

(b) light weight concrete

(c) prestressed concrete

(d) sawdust concrete

5. The material used as an ingredient of concrete is usually

(a) cement (b) aggregate

(c) water (d) All of these

6. Gypsum is added to the cement for

(a) providing high strength to the cement

(b) controlling the initial setting time of cement

(c) lowering the clinkering temperature of cement

(d) All of these

7. Which of the following ingredient of cement when added in excess quantity, causes cement to set slowly ?

(a) lime (b) silica

(c) alumina (d) iron oxide

8. In order to provide colour, hardness and strength to the cement, the ingredient used is

(a) lime (b) silica

(c) alumina (d) iron oxide

9. Efflorescence in cement is caused due to the excess of

(a) silica (b) lime

(c) alkalies (d) iron oxide

10. The concrete mix is said to be workable if it has

(a) compatability (b) movability

(c) stability (d) All of these

11. The use of air-entraining agents in concrete

(a) increases workability of concrete

(b) decreases bleeding

(c) decreases strength

(d) All of these

12. For high degree of workability, the slump value should vary between

(a) 0 to 25 mm (b) 25 to 50 mm

(c) 50 to 80 mm (d) 80 to 100 mm

Fill in the blanks :

13. In lime concrete, lime is used as _____.

14. The strength of concrete using air entraining cement gets reduced by _____.

15. In the manufacturing of pozzolana cement, the amount of pozzolana material added to ordinary portland cement clinkers is about _____.

16. The degree of grinding of cement is called _____.

17. The phenomenon by virtue of which the cement does not undergo large change in volume when treated with water, is known as _____.

18. The aggregates of _____ shape have minimum voids.

19. According to IS specifications, for the compressive strength test of cement, the cement and standard sand mortar in the ratio of _____ is used.

20. The resistance of an aggregate to sudden compressive force is known as _____.

21. Which type of cement is widely used in retaining wall ?

22. Which test is performed by using Vicat's apparatus ?

23. What is bulking of sand ?

24. Which compound is responsible for hydration of cement due to chemical action of water ?

25. In Vicat's apparatus, what is the diameter of vicat plunger ?

PART – B

Marks – 45

Questions in PART–B carry 5 (five) marks each.

Answer the following questions as directed : 5×9=45

1. Describe the manufacturing process of ordinary portland cement with suitable diagram.

2. Describe the various laboratory tests of aggregate.

3. Describe the various properties of fresh concrete.

4. Write about five different types of admixtures used in concrete.

5. Describe the slump test.

6. Describe sulphate resisting cement.

7. Write the various advantages and disadvantages of cement concrete.

8. What are the ingredients of cement ?

9. Describe the various special concrete.