Total No. of printed pages = 5

END SEMESTER EXAMINATION – 2019

Semester – 5th

Subject Code : CT-502

CONCRETE TECHNOLOGY

Full Marks – 70

Time – Three hours

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

Instructions :

1. Questions on PART-A are compulsory.
2. Answer any *five* questions from PART-B.

PART – A

Marks – 25

1. Choose the correct answers : 2×12=24

   (i) I S Sieve Nos. 10 mm and 4.75 mm are generally used for grading of 2

   (a) Coarse aggregates

   (b) Fine aggregates

   (c) Neither (a) nor (b)

   (d) Both (a) and (b).

[Turn over

(ii) Log angles machine is used to test the aggregate for 2

(a) Crushing strength

(b) Impact value

(c) Abrasion resistance

(d) Water absorption

(iii) The process of mixing, transporting, placing and compacting concrete using ordinary Portland cement should not take more than

(a) 30 minutes (b) 40 minutes

(c) 60 minutes (d) 90 minutes 2

(iv) Specified compressive strength of concrete is obtained from cube test at the end of 2

(a) 3 days (b) 7 days

(c) 21 days (d) 28 days

(v) Bulking of sand is maximum if moisture content is about 2

(a) 2% (b) 4%

(c) 6% (d) 10%

(vi) Concrete gains strength due to 2

(a) chemical reaction of cement with sand and coarse aggregates

(b) evaporation of water from concrete

(c) hydration of cement

(d) All of the above

(vii) Tricalcium aluminate (C 3A) 2

(a) reacts fast with water

(b) generates less heat of hydration

(c) causes initial setting and early strength cement

(d) does not contribute to develop ultimate strength

(viii) Admixtures which cause early setting and hardening of concrete are called 2

(a) Workability admixtures

(b) Accelerators

(c) Retarders

(d) Air entraining agents

(ix) Pick up the incorrect statement from the following : 2

(a) Admixtures accelerate hydration

(b) Admixtures make concrete water proof

(c) Admixtures make concrete acid proof

(d) Admixtures give high strength

(x) In slump test, each layer of concrete is compacted by a steel rod 60 cm long and of 16 mm diameter for 2

(a) 20 times (b) 25 times

(c) 30 times (d) 50 times

(xi) Particles of 0.002mm size are that of 2

(a) clay (b) sand

(c) gravel (d) None of these

(xii) The lower water cement ratio in concrete, introduces 2

(a) smaller creep and shrinkage

(b) greater density and smaller permeability

(c) improved frost resistance

(d) All of the above

2. The meaning of 'M' in M 20 grade concrete is _____. (Fill in the blank) 1

PART – B

Marks – 45

3. Write about the manufacturing process of ordinary Portland cement. 9

4. Discuss rheology and rhelogical properties of concrete in details. 9

5. Write about the properties of green concrete. Also write down the procedures of any two practical methods of determining those properties. 9

6. Write short notes on : 3×3=9

(a) Fiber reinforced concrete

(b) Guniting

(c) Types of cement.

7. What are the main mechanical properties of the aggregates and how they are determined ? 9

8. What about the different steps involved in the manufacturing of the concrete ? 9