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

Question Paper Code: 57101

B.E./B.Tech. DEGREE EXAMINATION, SEP 2020

Seventh Semester

Civil Engineering

15UCE701 -DESIGN OF REINFORCED CONCRETE AND BRICK MASONRY STRUCTURES

(Regulation 2015)

(Is 456:2000, Is 1905,Is 3370 : Part-II and SP16 are permitted)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The factor of safety due to sliding of retaining wall is generally taken as CO1- R

   (a) 1 (b) 1.5 (c) 2 (d) 4

2. The total active earth pressure acts at_____ above the base of the retaining wall CO1- R

   (a) H/2 (b) H/3 (c) H/4 (d) H/6

3. The minimum grade of concrete to be used in R.C water tank as per IS 456-2000 CO2- R

   (a) M20 (b) M25 (c) M30 (d) M35

4. The specific weight of water is normally taken as CO2- R

   (a) 9810 N/m^3 (b) 9180 N/m^3 (c) 9710 N/m^3 (d) 9815 N/m^3

5. The drops are provided in flat slabs to resist CO3- R

   (a) Torsion (b) Bending moment (c) Thrust (d) Shear

6. In interior span the negative design moment is CO3- R

   (a) 0.35 (b) 0.45 (c) 0.45 (d) 0.65

7. Which of the following is/are the method of analysis of yield line theory — CO4- R

(a) Equilibrium method (b) Virtual work method

(c) Both (d) None of the above

8. The orthotrophy coefficient denoted as — CO4- R

(a) μ (b) β (c) α (d) Ω

9. Usually the thickness of partition wall is — CO5- R

(a) 200mm (b) 300mm (c) 100mm (d) 50mm

10. The basic stress in masonry units having height to width ratio of 1.5 may be increased by a factor

(a) 1.2 (b) 1.4 (c) 1.6 (d) 2

PART – B (3 x 8= 24 Marks)

(Answer any six of the following questions)

11. Design a cantilever retaining wall to retain earth embankment 4m height above ground level. The density of earth is 18kN/m^3 and its angle of repose is 30 degrees. The embankment is horizontal at its top. The safe bearing capacity of the soil may be taken as 200kN/m^2 and the co efficient of friction between soil and concrete is 0.5. Adopt M20 grade concrete and Fe415 HYSD bars. — CO1- App — (8)

12. A rectangular R.C. water tank with an open top is store 80000litres of water. The inside dimensions of tank may be taken as 6m x 4m.the tank rests on walls on all the four sides. Design the side the side walls of the tank using M20 concrete and grade I steel. — CO2- App — (8)

13. Explain the step by step procedure of designing a reinforced concrete wall. — CO3- U — (8)

14. Design the simply supported square slab of 4.5m side length to support a service load of 4 kN/m^2. Adopt M20 grade concrete and Fe415 HYSD bars. Assume load factors according to IS456:2000 code standards — CO4- App — (8)

15. Brief the step to step procedure the design of brick wall — CO5- App — (8)