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

Question Paper Code: 57101

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

Seventh Semester

Civil Engineering

15UCE701 -DESIGN OF REINFORCED CONCRETE AND BRICK MASONRY STRUCTURES

(Regulation 2015)

(IS 456:2000, IS 1905 - 1987, IS 3370 : Part-II and Part-IV are permitted)

Duration: 1.15 hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Rankine's theory of lateral pressure was extended to other soil by _ CO1- R

   (a) Resal and Bell (b) Mohr (c) Terzaghi (d) All the above

2. 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

3. Dome in water tank is provided to achieve CO2- R

   (a) Maximum strength (b) Maximum storage

   (c) Minimum storage (d) Minimum hoop stress

4. 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

5. The decorative cap to the top of a newel post is called: CO3- R

   (a) Finials (b) Fillet (c) Easing (d) Apron

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

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

7. Ina simply supported slab , alternate bars are curtailed at CO4- R

   (a) $1/4^{th}$ of the span (b) $1/5^{th}$ of the span (c) $1/6^{th}$ of the span (d)$1/7^{th}$ of the span

8. Which of the following is/are the method of analysis of yield line CO4- R

theory

(a) Equilibrium method (b) Virtual work method

(c) Both (d) None of the above

9. The minimum thickness of the flat slab is taken as CO5- R

(a)L/32 for end panels without drops (b) L/36 for end panels without drops

(c) L/36 for interior panels without drops (d) All the above

10. Usually the thickness of partition wall is CO5- R

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

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Design a reinforced concrete cantilever type retaining wall , having a 5m full stem. The wall retains the soil with its top. The soil weighs 18000N/m^3, and has an angle of repose 30^0. The SBC of soil is 200KN/m^2. Use M20 grade concrete and Fe 415 Steel. CO1- App (8)

12. Design a underground water tank of internal dimension 6mx3mx3m. The soil surrounding the tank always remains dry. The tank shall be provided with a roof slab. The soil weighs 16000 N/m^2 , having an angle of repose 30^0. Use M20 grade concrete and Fe 415 Steel. CO2- E (8)

13. Design a interior panel of flat slab with drops for an office floor to suit the following data. CO3- U (8)
Size of floor = 20m X 20m
Size of panel = 5m X 5m
Loading class = 4 KN/m^2
Grade of concrete = M 20
Grade of steel = Fe 415

14. Design a rectangular slab 5mx4m in size and simply supported at the edges to support a service live load of 4KN/m^2. Assume coefficient of orthotrophy as 0.7 Use M20 grade concrete and Fe 415 Steel. CO4- Ana (8)

15. Design a interior cross wall with axially loaded and on stiffened solid wall constructed in a two storied building to carry 100mm thick RCC slabs with 3m ceiling height. It support a 2.65 m wide slab with live load on roof = 1.5KN/m^2. Live load on floor = 2KN/m^2, weight of 80mm thick terrace = 1.96KN/m^2, weight of floor finish = 0.8KN/m^2. CO5- E (8)