KATHMANDU UNIVERSITY
End Semester Examination
May/June, 2022

Marks Scored:

Level : B.E./B.Tech.
Year : III
Course : CIEG 310
Semester : II

Exam Roll No. :
Time: 30 mins.
F. M. : 10

Registration No.:
Date :

SECTION "A"
[20Q. × 0.5 = 10 marks]

Encircle the most appropriate answer.

1. In under reinforced beam
   a. Actual depth of neutral axis is less than limiting neutral axis
   b. Actual Moment of resistance is less than limiting Moment of resistance
   c. Both a and b
   d. None of the above

2. The rectangular beam of M20 concrete and Fe415 steel has size 250 mm × 350 mm (effective). The Limiting moment carrying capacity as per limit state is _____ KN-m
   a. 81.46 b. 84.52 c. 90 d. 93.21

3. As per IS 456:2000 maximum strain for concrete for limit state of flexure is
   a. 0.002 b. 0.0035 c. 0.005 d. 0.0065

4. For 4-legged stirrups of diameter 8mm the area of shear reinforcement is equal to ….mm^2.
   a. 280.74 b. 240.64 c. 201.06 d. 50.26

5. For a rectangular beam of size b × D has effective depth 'd'. The maximum spacing of stirrups as per IS 456:2000 is
   a. 0.75D b. 0.75d
   c. 0.75D or 300mm whichever is less d. 0.75d or 300mm whichever is less

6. Diagonal tension cracks are at _____ degrees.
   a. 15 b. 30 c. 45 d. 60

7. For a simply supported slab of span 8m. the basic value of (l/d) ratio is
   a. 7 b. 10 c. 20 d. 26

8. If unit weight of concrete and floor finish is 25 KN/m^3 and 22 KN/m^3, the dead load in slab of thickness 130 mm and floor finish thickness 50 mm is _____ KN/m^2.
   a. 3.25 b. 4.35 c. 5.35 d. 6.13

9. The rectangular slab of M25 concrete and Fe500 steel has effective depth 105 mm. The Limiting moment carrying capacity as per limit state is _____ KN-m
   a. 27.51 b. 36.66 c. 45.84 d. 55.01

10. In two way slab the main longitudinal reinforcement will be on
    a. Upper side b. Lower Position
    c. Irrespective of sides d. Insufficient Data

11. As per is 456:2000, column should have minimum diameter of longitudinal bar as
a. 12 mm b. 16 mm c. 20 mm d. 25 mm

12. The minimum area of steel in compression member as per IS456:2000 is ….. % of sectional area
a. 0.8 b. 1.2 c. 4 d. 6

13. Longitudinal bars with diameter 25mm is provided to a short column having size (350x450) mm. column is subjected to an axial compressive service load of 1000KN. The minimum diameter of the tie bars to be provided as per IS456:2000 is
a. 6 mm b. 8 mm c. 10 mm d. 12 mm

14. While calculating the depth of isolated footing taking one – way shear criteria, effective depth (d) is checked at
a. Free end of footing b. Face of the column
c. A distance d/2 from the face of column d. A distance d from the face of column

15. While calculating the depth of isolated footing taking two – way shear criteria, effective depth (d) is checked at
a. Free end of footing b. Face of the column
c. A distance d/2 from the face of column d. A distance d from the face of column

16. A building has floor height 3.36 m. The width of tread and height of riser is 260 mm and 140 mm respectively. Total number of steps required to move to next floor for dog legged staircase is:
a. 23 b. 25 c. 27 d. 29

17. The width of tread and height of riser is 400 mm and 300 mm respectively with total 10 steps in one flight. Length of flight is equal to
a. 4.5 m b. 5 m c. 5.5 m d. 6 m

18. As per IS 456:2000, E of M25 concrete is
a. 6250 MPa b. 12500 MPa c. 1875 MPa d. 25000 MPa

19. Which of the following losses in pre-stressed concrete occurs immediately after the application of prestressing force?
a. Elastic Shortening b. Creep
c. Shrinkage d. Relaxation

20. Higher grade of concrete is used in
a. Pre-tensioned concrete b. Post tensioned concrete
c. Both a and b d. Can't Say