SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Draw a suitable scale sectional plan and sectional elevation of a circular column from the following data:
Diameter of the circular column = 500 mm
Depth below G.L = 0.1 m
Plinth level above ground level = 500 mm
Height of ceiling above plinth level = 3.5 m
Column reinforcement:
Longitudinal reinforcement = 6 - 20 mmf
Spiral (helical) reinforcement = 8mmf @ 75 mm pitch
Footing Details:
Size of footing = 3.0 m x 3.0 m
Thickness of footing at column face = 750 mm
Thickness of footing at free end = 300 mm
Reinforcement = 12 mm f bars @200 mm c/c bothways.

Q.37 Draw to a suitable scale sectional plan and sectional elevation of a simply supported one-way slab with the following data:
Size of room = 3m x 6mThickness of slab = 150 mm
Bearing on walls = 150 mm
Thickness of walls = 300 mm
Main reinforcement = 12mm @ HYSD bars @150mm c/c with alternate bars bent up at 1/7
Distribution steel = 10 mm @ HYSD bars @200 mm c/c

Q.38 Draw the longitudinal section and two cross-sections (one at mid span and other near the support) of a doubly reinforced RCC beam with the following data:
Size of beam 230mmx 450mm
clear span=3.5m
Bearing on walls=230mm
main tensile reinforcement= 5 bars of 20mm dia in two tiers.(3 bars in the lower tier and 2 bars in the upper tier)
The bars of the upper tier are bent-up at L/7 from centre of support Spacer bars= 20mm dia @ 1m c/c
Compression reinforcement = 2 bars of 12mm dia
shear stirrups = 8mm dia 2 legged @ 170 mm c/c

No. of Printed Pages : 4 170751
Roll No. .....

5th Sem / Branch : Civil Engineering
Subject:- Reinforced Concrete Drawing

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 Shear reinforcement in beams may be provided as
a) Vertical Stirrups
b) bent up bar
c) Combination of vertical stirrups and beat up bar
d) All of these

Q.2 Partial safety factor for steel is (CO4)
a) 1.10 b) 1.15
c) 1.20 d) 1.25

Q.3 Stress at N.A. is (CO4)
a) Compressive b) tensile
c) Shearing d) Zero

Q.4 The ratio of with of web to the depth of web is kept as
a) 1/3 to 1/2 b) 1/2 to 2/3
c) 2/3 to 3/4 d) 3/4 to 4/5

Q.5 The effective width of flange bf for T-beam is given by bf = (lo/6)+bw+___?_____Df (complete the formula)
a) 3 b) 4
c) 6 d) 2

Q.6 The ratio of ly / lx ratio for a two way slab is
a) <2 b) >2
c) =2 d) =1

Q.7 The minimum percentage of longitudinal steel in a column is
a) 0.8 b) 0.6
c) 1.0 d) 1.2

Q.8 The maximum value of span/ depth ratio permissible in case of simply supported RCC beam is

a) 5 b) 10
c) 15 d) 20

Q.9 The spacing of vertical stirrups in a rectangular beam is.

a) Maximum near the support
b) Minimum near the support
c) Maximum near the centre
d) Minimum near the centre

Q.10 The failure of concrete can take place due to. (CO6)

a) Tensile stress
b) Diagonal tension
c) Diagonal compression
d) None of these

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Beams resist_____ in structures.

Q.12 Cracks can be prevented by properly designing of_____ reinforcement

Q.13 _____method assumes that concrete and steel are elastic.

Q.14 When the member is subjected to eccentric loading, it is designed as doubly reinforced section (True/False)

Q.15 The portion of T-beam below the slab is called_____

Q.16 _____Column fail by buckling

Q.17 Single wires used as a steel reinforcement are called as_____.

Q.18 Water cement ratio of concrete used in pre stressing should be about_____

Q.19 When corners of the two way slab are held down it is known as _____

Q.20 Hooks of stirrups must be provided in _____zone

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Write down the different types of limit states.

Q.22 An RCC beam 250mm X 500mm effective has a shear force of 300 KN .If the tensile stress is 1%, find the nominal shear stress in the beam and comment upon shear design.use M20

Q.23 Explain (L.S.M) Limit State Method and partial safety factors.

Q.24 Write a short note on T-beams.

Q.25 Write down the IS specifications for restrained slabs.

Q.26 Draw a labeled figure to explain the various components of a T-beams.

Q.27 Why the distribution steel is provided on the top of main steel.

Q.28 Write down the assumptions for the limit state of collapse in compression.

Q.29 Write any five differences between pre- tensioning and post tensioning methods.

Q.30 What is the function of longitudinal reinforcement? Why longitudinal steel is limited between minimum of 0.8% to maximum 6%?

Q.31 Write down the conditions under which the doubly reinforced beams are provided

Q.32 A singly reinforced rectangular beam of width 230 mm and 460 mm effective depth is reinforced with 4 bars of 20 mm. Find out the depth of neutral axis & specify the type of beam. Use M25 concrete and Fe-250 grade of steel

Q.33 A short concrete column is reinforced with 4 bars of 20 mm diameter. Determine the ultimate load carrying capacity of the column. Using M20 grade of concrete and Fe-415 grade steel, if the size of the column is 300mm x 300mm. Assume e=0.05D.

Q.34 Define

i) Pre-stressing ii) Tendons
iii) Pre-tensioning iv) Post-tensioning

Q.35 Explain stress & strain Distribution in a singly reinforced beam with diagram.