Q.31 Write short note on Transverse reinforcement as per there diameter and pitch.

Q.32 A short column 250mm *250 mm is reinforced with 4-12 mm diameter bars. Find the ultimate load carrying capacity of the column if the minimum eccentricity is less than 0.05 times the lateral dimensions. The materials used are M 20 grade concrete and HYSD Fe 415 grade reinforcement.

Q.33 Differentiate between Pre-Tensioning and Post - Tensioning method.

Q.34 Write short note on side face reinforcement.

Q.35 Differentiate between shallow and deep foundation.

SECTION-D

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

Q.36 Explain various method prestressing with neat sketch diagram.

Q.37 Design a simply supported RCC one way slab having clear span of 3.0m. and is supported on beams of 230 mm width. If it is carrying a live load of 3000 N/m². Use M20 concrete and Fe 415 steel.

Q.38 Design a square R.C.C column subjected to an ultimate axial load of 2500 KN. The column is effectively held in position as both ends but restrained against rotation at one end only. The actual length of the column is 3.5 m. Use M20 grade concrete and Fe 415 steel.

5th Sem / Arch
Subject:- Reinforced Cement Concrete

Time : 3Hrs.   M.M. : 100
SECTION-A

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

Q.1 Effective depth of a T-beam is the distance from topmost compressive fibre to
   a)   Centre of tensile reinforcement
   b)   Bottom of tensile reinforcement
   c)   Bottom of beam
   d)   Neutral axis

Q.2 Unit weight of P.C.C. in kn/m³ is
   a)   20   b)   22
   c)   24   d)   26

Q.3 It is preferable to meaure steel in terms of
   a)   Volume   b)   Weight
   c)   As per choice   d)   None of these

Q.4 The main steel is provided in beam in Compression zone
   a)   True   b)   False

Q.5 The modular ratio (m) for M20 concrete is takes as
   a)   9.33   b)   10.98
   c)   13.33   d)   23.33

Q6 Steel is strong in
 a) Compression   b) Tension
 c) Shear   d) Torsion

Q.7 Min. no. of longitudinal bar for Square column are
 a) 4   b) 5
 c) 6   d) 8

Q8 The nominal cover to longitudinal steel bars in a slab is
 a) 20 mm   b) 30 mm
 c) 40 mm   d) 50 mm

Q.9 Prestressing helps in avoiding the formation of
 a) Cracks   b) temperature stresses
 c) Shrinkage stresses d) all of these

Q.10 The portion of slab which acts with the L-beam is called
 a) Flange   b) web
 c) Column   d) none of these

SECTION-B

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

Q.11 Define HYSD steel.

Q.12 Define doubly R.C.C beam.

Q.13 Define Post - Tensioning.

Q.14 Define One way slab and two way slab.

Q.15 What do you understand L-beam.

Q.16 In a one way slab bending takes place in _____ direction.

Q.17 For Fe 415 steel $M_{u,lim}$ is = _____

Q.18 Define dead load.

Q.19 Factor of safety for concrete is_____

Q.20 Define shear reinforcement.

SECTION-C

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

Q.21 Write any five disadvantage of RCC.

Q.22 Write short note on limit state method.

Q.23 Write down the assumptions made in limit state of collapse in compression.

Q.24 Under which conditions the doubly reinforced beams are provided.

Q.25 Define Longitudinal and Transverse reinforcement.

Q.26 Write short note on spacing of reinforcement in beam.

Q.27 Draw stress block diagram / Parameters.

Q.28 Write specification for transverse steel for column as per I.S.

Q.29 Find M.O.R. for beam having width 300m, effective depth 500 mm with 5.No. 20 mm di. Bar. Take stress in steel 230 N/mm² and in concrete 7N/mm².

Q.30 Differentiate between short column and long column.