BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY
Question Bank (K-Scheme)

Name of subject: Design Of R.C.C. and Steel Structures(DRS) **Unit Test: II**
Subject code: 316308 **Course: CE**
Semester:VI

Unit 3 (Design Of Slabs)

2 Marks

1. Write cases of finding effective length in two way slab.
2. State any two difference between simply supported slab and cantilever slab.
3. Write BV for different slabs.
4. Define Two Way Slab and write formula of moment.

4 Marks

1. Design a simply supported roof slab for a room 10·5*4.5 m,live load is 2Kn/m2 and floor finish is 1.5Kn/m2.concrete is of grade M25 mild steel bars are used for reinforcement, width of support is 230mm.

2. Design a Cantilever chajja with following data span 1.5m with 1.5 m, Live load 2Kn/m2, floor finish 1kn/m2, support lintel 230*230mm.Use concrete M20 and FE45 steel sketch the cross section of Chajja.

3. Design a suitable slab for an internal room size of 4*7m. Take Live load of 2Kn/m2 and floor finish load 1Kn/m2, assume width of support 230mm, take modification factor 1.4.Take $\alpha x=0.10$ and $\alpha y=0.056$, use M20 concrete and FE415 steel do not apply check, sketch the cross-section along shorter span.

4. Design a slab for a room having inner dimensions 3*4.5m. The slab is simply supported on four side walls and corners are not held down. The Live load is 2.5Kn/m2, use mile steel grade 1 and concrete of grade M25. Take $\alpha x=0.104$ and $\alpha y=0.046$

Unit 4 (Design Of Axially Loaded Short Columns and Footings)

2 Marks

1. Define effective length and slenderness ration.
2. Write IS specification for minimum eccentricity of an axially loaded short columns.
3. Write IS specification for longitudinal reinforcement in columns.
4. State any four functions of lateral ties in column.
5. Define Footing and state its types.

4 Marks

1. Design a square column to carry an axial load of 1000KN, using mild steel lateral ties, use M20 concrete and FE415 steel take unsupported length of column 3.5 m, use 1% steel and apply check for minimum eccentricity.
2. Design a column footing for following data load on column 650KN , size of column 200 x 300 mm, safe bearing capacity of soil 150kn/m2, use concrete M20 and FE415 steel.
3. Design a square column to carry an axial load of 1500KN, using mild steel lateral ties, use M20 concrete and FE500 steel take unsupported length of column 3 m, use 1% steel and apply check for minimum eccentricity.
4. Calculate the working load carrying capacity of a column 230 x 2 30mm, provided with 4 bars of 16 mm diameter use M20 concrete and FE415 steel.
5. Design a circular column to carry an axial load of 1200KN, using MS lateral ties .use M25 concrete and FE415 steel the unsupported length of column is 3.75 m.

Unit 5 (Design Of Steel Structures Connections)

2 Marks

1. Define Pitch and End Distance.
2. Define Bolt Value.
3. Explain Lap Joint.
4. Explain meaning of 4.6grade bolt.

4 Marks

1. Write advantages and disadvantages of Bolted connection.
2. Write advantages and disadvantages of Welded connection.
3. Determine the efficiency of Lap joint used to connect two plates of 10mm thick, use FE410 grade for plate material and 4.6 grade for bolts, take the end distance equal to 30 MM and bolt diameter 22 MM with 50 MM pitch.
4. Design a suitable fillet wealth of size 4mm to connect a tie bar 80 x8 MM to 12 MM thick Gusset plate, joint has to be designed for full strength of the tie bar and welding on all three sides.Take Fy-250MPA.¥mo=1.1,fu-410MPA,¥mw=1.5.Draw neat sketch.