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

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

Unit 1 (Fundamentals of RCC and Steel Structures)

2 Marks

1. Advantages of Steel as reinforcement.
2. Define a) Characteristic load b) Characteristic strength
3. State any four types of load to be considered while designing a steel structure also state respective IS codes.
4. Define RCC and PCC.
5. write the function of steel Towers

4 Marks

1. State any four types of structural steel sections giving their full names along with sketches.
2. State advantages and disadvantages of steel as a structural material
3. Explain partial safety factors and state its types
4. Explain the limit state and state its types.
5. Write functions of reinforcement.

Unit 2 (Analysis and Design of Beam)

2 Marks

1. State two uses of bent up bar
2. State various forms of shear reinforcement.
3. write the formula of minimum share enforcement and write meaning of each term.
4. State minimum reinforcement for beam and slab
5. Draw stress strain curve for concrete and steel

4 Marks

1. Draw equivalent stress diagrams for singly reinforced section in LSM
2. write the assumptions of limit state of collapse(Flexure).
3. A singly reinforced beam 230 x 500mm effective cross-section is simply supported and has a 6 m effective span, beam is reinforced with 4 bars of 16mm diameter. Calculate maximum UDL it can carry over the entire span. Use M20 concrete and Fe415 steel.
4. Find limiting moment of resistance and steel required for a beam 300*550 mm effective ,if concrete M20 and Fe415 steel are used.
5. Design a rectangular RC beam section to carry a working bending moment of 70KN-m. Assume b=1/2d. Use M20 concrete and Fe500steel.

6. Calculate the spacing of 6mm diameter mild steel of two legged vertical stirrups for a simply supported beam of span 4 m with 250mm*350 mm effective in cross-section. The Beam is reinforced with 4 bars of 12 mm diameter on tension side and are continued into support of grade Fe415. The beam is carrying a UDL of 24KN/m over entire span. Assume M20 concrete.Use table for Tc.

% pt	0.25	0.5	0.75	1
Tc	0.36	0.48	0.56	0.62

7. Calculate the development length for steel bar in tension and compression if diameter of bar is 12 mm,use Fe 415 and bond stress is 1.2 MPa for plain bars.

Unit 3 (Design Of Slabs)

2 Marks

1. differentiate between one way slab and two way slab on any four parameters.
2. State any two difference between simply supported slab and cantilever slab.
3. Write BV for different slabs.

4 Marks

1. Design a simply supported roof slab for a room 9·5*4.5 m,live load is 3Kn/m2 and floor finish is 1Kn/m2.concrete is of grade M20 mild steel bars are used for reinforcement, width of support is 300mm.

2. Design a Chajja for a span of 0.75 m take live load 2Kn/m2, floor finish 1Kn/m2,use M20 concrete and Fe415 steel ,size of Lintel supporting chajja is 230*230mm,do not apply check.