Sample question bank for Limit state method for reinforced concrete structures (LSMRCS)

BE civil

Semester VII

Sr	Question
1	The acceptable limit for the safety and serviceability requirements before failure occurs is called _____ (A) Working stress method (B) Ultimate Strength method (C) Limit state method (D) None of the above
2	The maximum strain in concrete at the outermost compression fibre is taken as ____ in bending (A) 0.002 (B) 0.0035 (C) 0.87 (D) 0.05
3	Basic value of span/ depth ratio for limit of deflection for simply supported slab having span up to 10 m shall be (A) 7 (B) 26 (C) 20 (D) 40
4	The maximum distance between main steel in slab is limited to (A) 3d, 300 mm (B) 3d, 450 mm (C) 5d, 300 mm (D) 5d, 450 mm
5	The maximum distance between distribution steel in slab is limited to (A) 3d, 300 mm (B) 3d, 450 mm (C) 5d, 300 mm (D) 5d, 450 mm
6	In limit state design, the centroid of compression force from extreme compression fibre lies at distance of (A) 0.367 Xu (B) 0.446 Xu (C) 0.42 Xu (D) 0.56 Xu
7	In limit state method, the limiting value of depth of neutral axis for Fe-250 grade of steel is ? (A) 0.46 d (B) 0.48 d (C) 0.50 d (D) 0.53 d
8	Limiting moment of resistance of R.C beam for Fe-500 grade steel is (A)$M_{ulim} = 0.130\ f_{ck}\ b\ d^2$

	(B))$M_{ulim} = 0.133\ f_{ck}\ b\ d^2$ (C))$M_{ulim} = 0.138\ f_{ck}\ b\ d^2$ (D))$M_{ulim} = 0.148\ f_{ck}\ b\ d^2$
9	The limiting moment of resistance of singly reinforced beam of size 300 mm x 450 mm effective, consider M20 & Fe-415 grades. (A) 121.45 kN-m (B) 161.59 kN-m (C) 167.67 kN-m (D) 179.82 kN-m
10	A singly reinforced beam is reinforced with 3 nos - 20 mm diameter, its dimensions are 250 mm x 450 mm effective, For M20 & Fe-500 grade, it is to be designed as (A) Under - reinforced section (B) Over - reinforced section (C) Balance section (D) None of the above
11	For flanged beam, Fc > Ft, N.A lies in? (A) In flange (B) In web (C) Flange & web both (D) None of the above
12	In a singly reinforced beam, the effective depth is measured from its compression edge to (A) Tensile edge (B) C.G. of Tensile reinforcement (C) Neutral axis of the beam (D) Longitudinal central axis
13	Aspect ratio for slabs is a ratio of (A) Longer to shorter span (B) Shorter to longer span (C) Longer span to depth (D) Shorter span to depth
14	In two-way slab lifting of corner occur due to (A) Resultant shear force (B) Torsional moment (C) Unbalanced moment (D) Resultant stress
15	In one-way slab main steel provided on which side (A) Shorter span (B) Longer span (C) Both side (D) None of the above
16	Anchoring is done by hooks normally in case of (A) HYSD bars (B) Prestressing steel (C) Plain mild steel bars (D) TMT bars
17	Spiral reinforcement is normally provided in (A) Square Column

	(B) Rectangular column (C) Circular column (D) Long column
18	The depth of footing is not decided from _____ criteria a) Maximum bending moment b) One-way shear c) Maximum torsional moment d) Two-way shear
19	How is the depth of footing for an isolated column is governed? 1. By maximum bending moment 2. By shear force 3. By punching shear Select the correct answer using the codes given below (a) 2 and 3 only (b) 1 and 2 only (c) 1 and 3 only (d) 1,2 and 3
20	A square column section of size 350 mm x 350 mm is reinforced with four bars of 25 mm diameter and four bars of 16 mm diameter, Then the transverse steel should be (a) 5 mm dia @240 mm c/c (b) 6 mm dia @250 mm c/c (c) 8 mm dia @250 mm c/c (d) 8 mm dia @350 mm c/c
21	A simply supported beam is required to carry a load of 23 kN/m including self-weight over an effective span of 6.0 m. This beam shall be designed for a factored bending moment in limit state method of: (a) 103.500 kN-m (b) 119.025 kN-m (c) 155.250 kN-m (d) 187.273 kN-m
22	A reinforced concrete beam of 10 m effective span and 1 m effective depth is supported on 500 mm x 500 mm columns. If the total uniformly distributed load on the beam is 10 MN/m, the design shear force for the beam is a) 50 kN b) 47.5 kN c) 37.5 kN d) 43 kN
23	A T-beam roof section has the following particulars: Thickness of slab = 100 mm Width of rib - 300 mm Depth of beam = 500 mm Centre to centre distance of beams = 3.0 m Effective span of beams = 6.0 m Distance between points of contraflexure is 3.60 m. The effective width of flange of the beam is (a) 3000 mm (b) 1900 mm (c) 1600 mm (d) 1500 mm

24	For a simply supported one-way slab provided over a clear span of 3.37 m having maximum ultimate bending moment of 21.8 kNm. If the effective depth is 126 mm, the area of main steel required in mm^2 for M25 grade concrete and Fe415 grade steel a) 625 b) 514.3 c) 312.4 d) 415.5
25	Two vertical cantilever poles 6 m high fixed at the base, hold a horizontal cable at top to carry a vertical load. The effective length of columns a) 4.8 m b) 7.2 m c) 12 m d) 9.0 m