FAQs

1. **Give the IS codal provision for determining effective length of slab.**

   Effective span of slab shall be lesser of the following

   - clear span + d (effective depth)
   - center to center distance between the support whichever is less

2. **What are the loads on slab?**

   a. Dead Loads

      i. Self weight of slab itself

      ii. Weight of partitions

      iii. Weight of floor finishes etc.

   b. Live load as per IS 875

3. **Give the nominal cover for the reinforcement**

   Nominal Cover :

   - For Mild exposure – 20 mm
   - For Moderate exposure – 30 mm
   - However, if the diameter of bar do not exceed 12 mm, or cover may be reduced by 5 mm. Thus for main reinforcement up to 12 mm diameter bar and for mild exposure, the nominal cover is 15 mm

4. **Write the IS codal provision for minimum reinforcement required for slab.**

   Minimum reinforcement :

   The reinforcement in either direction in slab shall not be less than

   - 0.15% of the total cross sectional area for Fe-250 steel
   - 0.12% of the total cross sectional area for Fe-415 & Fe-500 steel.

5. **What is maximum spacing of reinforcement as per IS456:2000?**

   The maximum spacing of bars

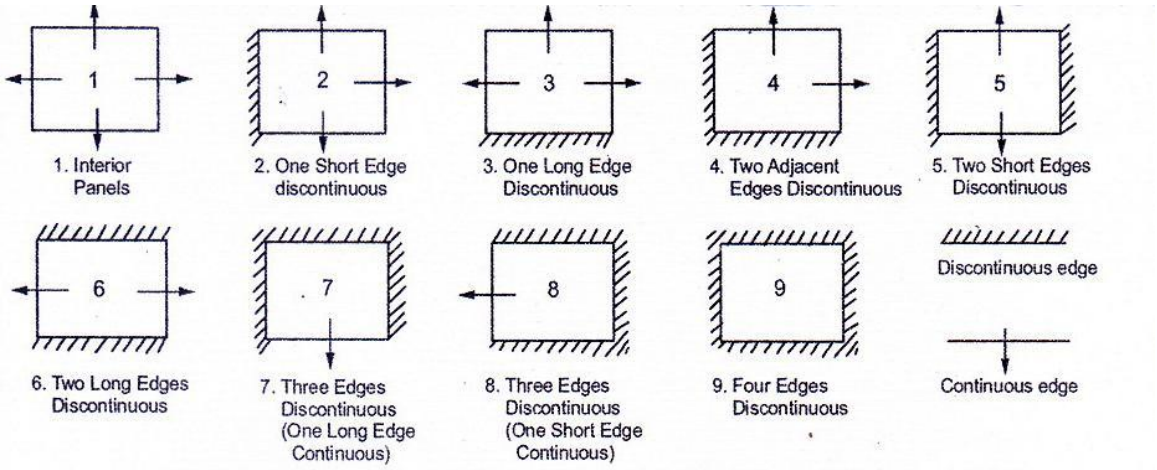
   Main Steel: The horizontal distance between parallel main reinforcement bars shall not be more than three times the effective depth of solid slab or 300 mm whichever is smaller.

   Distribution Steel: The horizontal distance between parallel reinforcement bars provided against shrinkage and temperature shall not be more than five times the effective depth of a solid slab or 450 mm whichever is smaller.

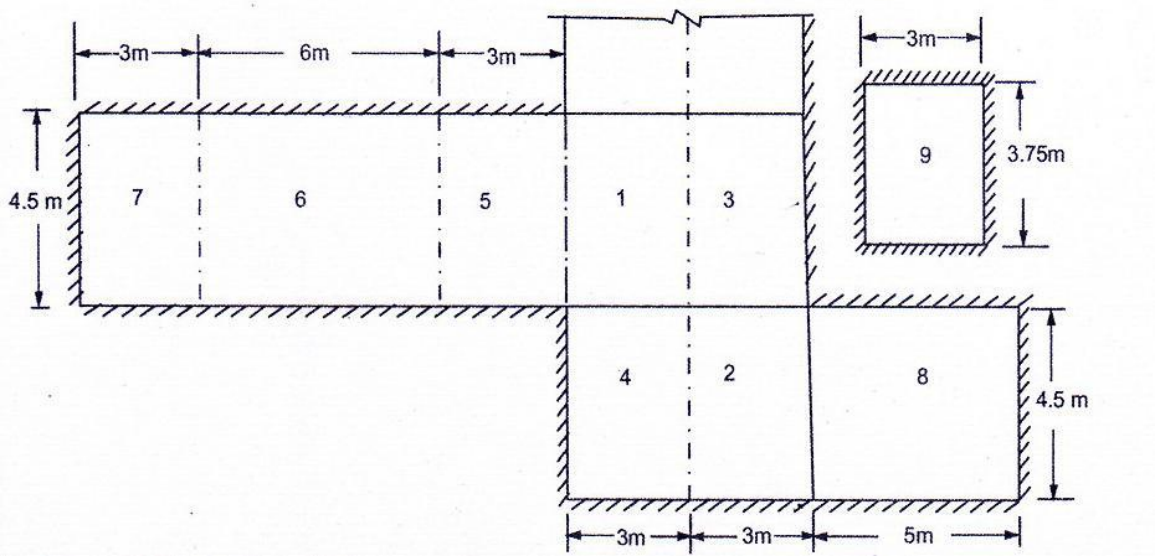
6. **Give the IS codal provision for finding moments for two way restrained slab.**

   Two way restrained slabs

   When the two way slabs are supported on beam or when the corners of the slabs are prevented from lifting the bending moment coefficients are obtained from Table 26, IS:456-2000 depending on the type of panel shown in Fig.



Different Types of Support Conditions for Rectangular Two - way Slabs



These coefficients are obtained using yield line theory. Since, the slabs are restrained; negative moment arises near the supports. The bending moments are obtained using;

M_x (Negative)= $\alpha_x^{(-)}$ W l^2_x

M_x (Positive)= $\alpha_x^{(+)}$ W l^2_x

M_y (Negative)= $\alpha_y^{(-)}$ W l^2_x

M_y (Positive)= $\alpha_y^{(+)}$ W l^2_x

Table 26, IS 456-2000 - Bending moment coefficients for two way restrained slabs

Case No.	Type of Panel and Moments Considered	Short Span Coefficients α_x (Values of l_y/l_x)								Long Span Coefficients α_y for All Values of
		1.0	1.1	1.2	1.3	1.4	1.5	1.75	2.0	l_y/l_x
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	*Interior Panels*:									
	Negative moment at continuous edge	0.032	0.037	0.043	0.047	0.051	0.053	0.060	0.065	0.032
	Positive moment at mid-span	0.024	0.028	0.032	0.036	0.039	0.041	0.045	0.049	0.024
2	*One Short Edge Continuous*:									
	Negative moment at continuous edge	0.037	0.043	0.048	0.051	0.055	0.057	0.064	0.068	0.037
	Positive moment at mid-span	0.028	0.032	0.036	0.039	0.041	0.044	0.048	0.052	0.028
3	*One Long Edge Discontinuous*:									
	Negative moment at continuous edge	0.037	0.044	0.052	0.057	0.063	0.067	0.077	0.085	0.037
	Positive moment at mid-span	0.028	0.033	0.039	0.044	0.047	0.051	0.059	0.065	0.028
4	*Two Adjacent Edges Discontinuous*:									
	Negative moment at continuous edge	0.047	0.053	0.060	0.065	0.071	0.075	0.084	0.091	0.047
	Positive moment at mid-span	0.035	0.040	0.045	0.049	0.053	0.056	0.063	0.069	0.035
5	*Two Short Edges Discontinuous*:									
	Negative moment at continuous edge	0.045	0.049	0.052	0.056	0.059	0.060	0.065	0.069	—
	Positive moment at mid-span	0.035	0.037	0.040	0.043	0.044	0.045	0.049	0.052	0.035
6	*Two Long Edges Discontinuous*:									
	Negative moment at continuous edge	—	—	—	—	—	—	—	—	0.045
	Positive moment at mid-span	0.035	0.043	0.051	0.057	0.063	0.068	0.080	0.088	0.035
7	*Three Edges Discontinuous (One Long Edge Continuous)*:									
	Negative moment at continuous edge	0.057	0.064	0.071	0.076	0.080	0.084	0.091	0.097	—
	Positive moment at mid-span	0.043	0.048	0.053	0.057	0.060	0.064	0.069	0.073	0.043
8	*Three Edges Discontinuous (One Short Edge Continuous)*:									
	Negative moment at continuous edge	—	—	—	—	—	—	—	—	0.057
	Positive moment at mid-span	0.043	0.051	0.059	0.065	0.071	0.076	0.087	0.096	0.043
9	*Four Edges Discontinuous*:									
	Positive moment at mid-span	0.056	0.064	0.072	0.079	0.085	0.089	0.100	0.107	0.056

7. Give the IS code provision for maximum diameter of reinforcement for slab.

Maximum diameter of bar:

The maximum diameter of bar in slab, shall not exceed D/8, where D is the total thickness of slab.

8. Give the types of slab based on support conditions.

- Simply supported slab
- Restrained slabs

9. Give the IS codal provision for finding moments for two way simply supported slab.

Two way simply supported slab

The bending moments M_x and M_y for a rectangular slabs simply supported on all four edges with corners free to lift or the slabs do not having adequate provisions to prevent lifting of corners are obtained using

- $M_x = \alpha_x W l^2_x$

- $M_y = \alpha_y W l^2_x$

where, α_x and α_y are coefficients given Table 27, IS:456-2000 and W- Total load /unit area; l_x & l_y – lengths of shorter and longer span.

Table 27:IS 456-2000 Bending Moment Coefficients for Slabs Spanning in Two Directions at Right Angles, Simply Supported on Four Sides

l_y/l_x	1.0	1.1	1.2	1.3	1.4	1.5	1.75	2.0	2.5	3.0
α_x	0.062	0.074	0.084	0.093	0.099	0.104	0.113	0.118	0.122	0.124
α_y	0.062	0.061	0.059	0.055	0.05 1	0.046	0.037	0.029	0.020	0.014