Q.60. If the nominal shear stress (τv) at a section does not exceed the permissible shear stress (τc)

A• Minimum shear reinforcement is still provided
B• Shear reinforcement is provided to resist the nominal shear stress
C• No shear reinforcement is provided
D• Shear reinforcement is provided for the difference of the two

Q.61. Shear span is defined as the zone where

A• Bending moment is zero
B• Shear force is zero
C• Shear force is constant
D• Bending moment is constant

Q.62. In a reinforced concrete retaining wall, a shear key is provided, if the

A• Shear stress in the vertical stem is excessive
B• Shear force in the toe slab is more than that in the heel slab
C• Retaining wall is not safe against sliding
D• Retaining wall is not safe against overturning

Q.63. The maximum permissible shear stress τcmax given in BIS 456-1978 is based on

A• Diagonal tension failure
B• Diagonal compression failure
C• Flexural tension failure
D• Flexural compression failure

Q.64. A reinforced concrete beam of 10m 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 MN
B• 47.5 MN
C• 37.5 MN
D• 43 MN

Q.65. Which one of the following statements is correct? Minimum shear reinforcement in beams is provided in the form of stirrups

A• to resist extra shear force due to live load
B• to resist the effect of shrinkage of concrete
C• to resist principal tension
D• to resist shear cracks at the bottom of beam

Q.66. Which one of the following statements is correct?
Diagonal tension reinforcement is provided in a beam as

A• Longitudinal bars
B• Bent up bars
C• Helical reinforcement
D• 90° bend at the bends of main bars

Q.67. Shear strength of concrete in a reinforced concrete beam is a function of which of the following:

1• Compressive strength of concrete
2• Percentage of shear reinforcement
3• Percentage of longitudinal reinforcement in tension in the section
4• Percentage total longitudinal reinforcement in the section

Select the correct answer using the code given below

A• 1, 2 and 4
B• 1, 2 and 3
C• Only 1 and 3
D• Only 1 and 4

Q.68. A beam is designed for uniformly distributed loads causing compression in the supporting columns. Where is the critical section for shear? (d is effective depth of beam the L d is development length)

(a) A distance Li3 from the face of the support
(b) A distance d from the face of the support
(c) At the centre of the support
(d) At the mid span of the beam

Q.69. How can shear strength be ensured in a beam?

(a) By providing binding wire on main bars
(b) By providing HYSD bars instead of mild steel bars
(c) By providing rounded aggregate
(d) By providing stirrups

Q.70.

What is the adoptable maximum spacing between vertical stirrups in an RCC beam of rectangular cross-section having an effective depth of 300 mm?

(a) 300mm

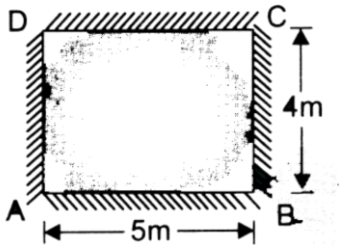
(b) 275mm

(c) 250mm

(d) 225mm

Q.71.

The RC slab, simply supported on all edges as in above figure, is subjected to a total UDL of 12 kN/m2. The maximum shear force/unit length along the edge 'BC' is



(a) 16 kN

(b) 12 kN

(c) 8 kN

(d) 30 kN

Q.72.

In a reinforced concrete section the of the nominal shear stress diagram is

(a) parabolic over the full depth

(b) parabolic above the neutral axis and rectangular below the neutral axis

(c) rectangular over the full depth

(d) rectangular above the neutral axis and parabolic below the neutral axis

Q.73.

Assuming the concrete below the neutral axis to be cracked, the shear stress across the depth of a singly reinforced rectangular beam section

(a) increases parabolically to the neutral axis and then drops abruptly to zero value

(b) increases parabolically to the neutral axis and then remains constant over the remaining depth

(c) increases linearly to the neutral axis and then remains constant up to the tension steel

(d) increases parabolically to the neutral axis and then remains constant up to the tension steel

Q.74.

If the stirrup spacing is equal to 0.75 times the effective depth of an RC beam, then the shear capacity of stirrup steel is equal to

(a) 1.25 (fy Asv)

(b) 1.16 (fy Asv)

(c) 1.00 (fy Asv)

(d) 0.80 (fy Asv)

where fy is yield strength and Asv is cross- sectional area of the stirrup steel.

Q.75.

If a 2-legged 8 mm diameter HYSD bar is used as shear reinforcement for a beam of width 230 mm and effective depth 300 mm, what is the nearest magnitude of the spacing of minimum shear reinforcement?

(a) 420 mm

(b) 390 mm

(c) 350 mm

(d) 320 mm