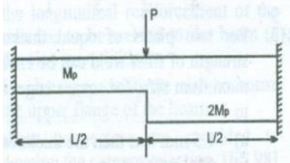**01.**



A fixed beam made of steel is shown in fig. at collapse, the value of load P will be equal to

a. 10 $M_p$ /L
b. 12 $M_p$ /L
c. 16 $M_p$ /L
d. 20 $M_p$ /L

**02.** The ratio of collapse load of a propped cantilever of span 'l' carrying a udl through-out the span to that of a simply supported beam carrying the same load is

a. 1 . 457
b. 1 . 500
c. 2 . 000
d. 3 . 000

**03.** Elastomeric bearing pads are

a. Flat solid metal plates
b. Preferable to steel roller any periodical maintenance
c. Not as satisfactory for concrete bridges as they are for steel bridges
d. Made of thermo-plastic material

**04.** To transform an indeterminate frame with a degree of indeterminacy 'r' into a determinate one, the number of plastic hinges required is

a. R + 2
b. R + 1
c. R
d. R – 1

**05.** The notching in a simply-supported timber beam of span 'l' and depth 'd' should be restricted to the region

a. 1/6 from the support
b. 1/6 from the midspan
c. 1/6 or 3d from the mid-span, whichever is less
d. 1/6 or 3d from the supports, whichever is less

**06.** A steel beam of rectangular cross-section is clamped at both ends. Plastic deformation is just observed when the udl on the beam is 10 kN/m. at the instant of collapse, the load on the beam will be

a. 10 kN/m
b. 15 kN/m
c. 20 kN/m
d. 30 kN/m

**07.** In a composite construction,

a. Interface slipping is prevented by using shear connectors.
b. Differential shrinkage is overcome by using the same grade of concrete for both the components.
c. Precast member is always designed to carry the weight of in-situ concrete without props.
d. The in-situ concrete cannot be pre stressed

**08.** If 'A' be the area of cross-section of a bar the gauge length for the measurement of ductillity will be

a. 5 . 65 x A $^{½}$
b. 5 . 65 x A
c. 6 . 56 x A $^{½}$
d. 6 . 56 x A

**09.** High yield deformed bars have a

a. Definite yield value
b. Chemical composition less than that of mild steel.
c. Percentage elongation less than that of mild steel.
d. Percentage elongation more than that of mild steel.

**10.** The effective length of a structure steel compression member of length 'L' effectively held in position and restrained against rotation at one end but neither held in position nor restrained against rotation at the other end, is

a. L
b. 1 . 2 L
c. 1 . 5 L
d. 2 . 0 L

**12.** Match List I (type of connection) with List II (type of beams ) and select the correct answer using the codes given below the lists

| List I | List II |
|--------|---------|
| A. Semi rigid connection | 1. To permit large angles of rotation and to transmit negligible moment |
| B. Framed connection | 2. To allow small end rotation and transmit appreciable moment |
| C. Flexible connection | 3. When a beam is connected or a beam or stanction by means of an angle at the bottom of the beam which is shop-riveted to the beam and an angle at the top of which is field riveted |
| D. Seated connection | 4. When a beam is connected to a beam or stanchion by means of two angles riveted to then |

Codes:
a. A – 2, B – 4, C – 3, D – 1
b. A – 4, B – 2, C – 1, D – 3
c. A – 2, B – 4, C – 1, D – 3
d. A – 4, B – 2, C – 3, D – 1

**13.** For plates of equal thickness, full strength of fillet weld can be ensured if its maximum size, for square edge, is limited to

a. 1.5 mm less than the thickness
b. 75% of the thickness
c. 80% of the thickness
d. Thickness of the plate

**14.**
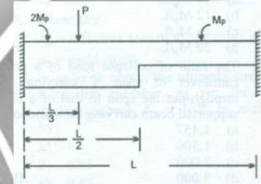


A fixed beam is shown in fig. the plastic failure load for this beam is

a. 10 .0 $M_p$ /L
b. 12 .5 $M_p$ /L
c. 15 .0 $M_p$ /L
d. 16 .5 $M_p$ /L

**15.** The height at which wind force acts on a moving vehicle on a bridge deck is

a. 1 . 2 m
b. 1 . 5 m
c. 1 . 7 m
d. 2 . 0 m