

# MARATHON CLASS

## (STEEL-STRUCTURE-SSC-JE-PYQ)

Q: 1) Rolled steel sections are classified:

- A : Equals angles
- B : unequal angles
- C : Bulb angles
- D : All the above

Q: 2) For steel construction where secondary effects are considered without wind or earthquake loads, the permissible stresses on the members or connections, as specified, may be exceeded by:

- A : 0.25
- B : 0.33
- C : 0.3333
- D : 0.4

Q: 3) Standard loads are given in

- A : IS 885
- B : IS1375
- C : IS 675
- D : IS 875

Q: 4) According to IS : 800-1984, the permissible stress in axial tension in steel is: ( $f_y$  = minimum yield stress of steel)

- A :  $0.56 f_y$
- B :  $0.66 f_y$
- C :  $0.70 f_y$
- D :  $0.6 f_y$

Q: 5) permissible stress may also be known as:

- A : Ultimate stress
- B : Working stress
- C : Limit stress
- D : Yield stress

Q: 6) Partial safety factor on steel stresses is

- A : 1.67
- B : 1.15
- C : 1.77
- D : 1.5

Q: 7) Percentage increase of carbon in steel, decreases its

- A : Hardness

B : Ductility

C : Strength

D : Brittleness

Q: 8) The common assumption that all rivets share equally a non-eccentric loads valid at a load \_\_\_\_\_

- A : Below the working load
- B : Equal to the working load
- C : Above the working load
- D : Equal to the failure load

Q: 9) Rolled steel angle sections are classified as-

- A : Equal angles
- B : Unequal angles
- C : Bulb angles
- D : All option are correct

Q: 10) A structural member subjected to tensile force in a direction parallel to its longitudinal axis is generally known as

- A : A tie
- B : A tie member
- C : A tension member
- D : All option are correct

Q: 11) The one that has least carbon content is:

- A : Wrought iron
- B : Cast iron
- C : Mild steel
- D : Pig steel

Q: 12) The modulus of elasticity of steel is more than of concrete, it indicates that steel is

- A : Less elastic
- B : More plastic
- C : Less plastic
- D : None of these

Q: 13) In a grillage footing the maximum shear force occurs at the

- A : Edge of grillage beam
- B : Centre of base plate
- C : Centre of grillage beam
- D : None of these

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Q: 14) Lug angle is

- A : Used with single angle member
- B : Not used with double angle member
- C : Used with channel member
- D : All option are correct

Q: 15) The maximum spacing of tacking rivets is

- A : 500 mm
- B : 750 mm
- C : 1000 mm
- D : 1500 mm

Q: 16) In a fillet weld the weakest section is the:

- A : Smaller side of the fillet
- B : Throat of the fillet
- C : Side perpendicular to force
- D : Side parallel to force

Q: 17) In calculating area to be deducted for bolts of 36 mm diameter, the diameter of the hole shall be taken as;

- A : 37.5 mm
- B : 36.0 mm
- C : 38.0 mm
- D : 38.5 mm

Q: 18) For field rivets the maximum permissible stresses in rivets and bolts as given in the code are reduced by:

- A : 0.05
- B : 0.1
- C : 0.15
- D : 0.2

Q: 19) The type of welding used to connect two plates at a joint is called

- A : Butt weld
- B : Slot weld
- C : Plug weld
- D : Fillet weld

Q: 20) Which of the following does not describe a weld type?

- A : Butt weld
- B : Plug weld
- C : Zigzag weld
- D : Lap weld

Q: 21) The effective length of a fillet weld of length  $l$  is

- A :  $l-4s$
- B :  $(2/3)l$
- C :  $l-2s$
- D :  $(4/5)l$

Q: 22) If  $p$  and  $d$  are pitch and gross diameter of rivets, the efficiency  $\eta$  of the riveted joint, is given by :

- A :  $\eta = p/(p-d)$
- B :  $\eta = (p-d)/p$
- C :  $\eta = p/(p+d)$
- D :  $\eta = (p+d)/p$

Q: 23) Effective throat thickness ( $t$ ) and size of weld ( $S$ ) are connected as:

- A :  $t = kS^2$
- B :  $t = S^3$
- C :  $t = kS$
- D :  $t = k\sqrt{S}$

Q: 24) Pick the wrongly written assumption taken in analysis of riveted joints:

- A : Friction in plate is negligible
- B : Uniform stress distribution in plates is not consideration
- C : Bending moment is not taken into considered
- D : Total load on the joint is equal shared by all rivets.

Q: 25) If a 2 cm diameter rivet connects two plates as shown below and safe shear stress for rivet is  $1000 \text{ kg/cm}^2$  the value of maximum permissible pull will be:

- A : 1100 kg
- B : 1140 kg
- C : 2140 kg
- D : 3140 kg

Q: 26) The maximum permissible stress in shear in shear for power driven shop rivet is:

- A :  $80 \text{ N/mm}^2$
- B :  $90 \text{ N/mm}^2$
- C :  $100 \text{ N/mm}^2$
- D :  $250 \text{ N/mm}^2$

Q: 27) When two plates are placed end-to end and jointed by two cover plates, the joint is known as:

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- A : Lap joint
- B : Butt joint
- C : Chain riveted lap joint
- D : Double cover butt joint

Q: 28) Diameter of a rivet hole should be greater than the nominal diameter of rivet by about:

- A : 4 to 5 mm
- B : 2.5 to 4 mm
- C : 1.5 to 2 mm
- D : 0 to 1.5 mm

Q: 29) The distance between two rivets measured perpendicular to the direction of applied force is known as:

- A : Pitch
- B : Gauge
- C : Staggered pitch
- D : Edge distance

Q: 30) The maximum permissible stress for hand driven rivet in axial tension is:

- A : 250 N/mm<sup>2</sup>
- B : 80 N/mm<sup>2</sup>
- C : 90 N/mm<sup>2</sup>
- D : 100 N/mm<sup>2</sup>

Q: 31) The size of a rivet is identified by:

- A : Diameter of shank
- B : Diameter of head
- C : Length of shank
- D : Shape of head

Q: 32) The fillet weld whose axis is parallel to the direction of the applied load is known as

- A : Side fillet weld
- B : End fillet weld
- C : Flat fillet weld
- D : Diagonal fillet weld

Q: 33) For a standard 45° fillet, the ratio of size of fillet to throat thickness is-

- A : 0.042361111111111111
- B : 1:√22
- C : √22:1
- D : 0.08402777777777778

Q: 34) Design of riveted joint assume that

- A : The bending stress in rivets is accounted for
- B : The riveted hole is to be filled by the rivet

C : The stress in the plate is not uniform

D : The friction between plates considered

Q: 35) The rivets which is heated and then driven in the field are known

- A : Power driven shop rivets
- B : Power driven field rivets
- C : Hand driven rivets
- D : Cold driven rivets

Q: 36) The transverse fillet welds are designed for

- A : Tensile strength
- B : Shear strength
- C : Compressive strength
- D : Bending stress

Q: 37) Which of the following assumption are made in the design of rivet joints?

- A. Rivets are stressed equally
  - B. Stress in plate is maximum at mid-width
  - C. Rivet hole is completely filled by rivet
  - D. Friction between plates is neglected
- A : Only A
  - B : A and C only
  - C : B and D only
  - D : A,C and D only

Q: 38) Cold driven rivets range from-

- A : 6 to 10 mm in diameter
- B : 10 to 6 mm in diameter
- C : 12 to 22 mm in diameter
- D : 22 to 32 mm in diameter

Q: 39) The distance measured along one rivet line from the centre of a rivet to the centre of adjoining rivet on an adjacent parallel rivet line is called-

- A : Pitch of rivet
- B : Gauge distance of rivet
- C : Staggered pitch
- D : All option are correct

Q: 40) Diameter of a rivet hole is made larger than the diameter of the rivet by

- A : 1.0 mm for rivet diameter upto 12 mm
- B : 1.5 mm for rivet diameter exceeding 25 mm
- C : 2.0 mm for rivet diameter over 25 mm
- D : None of these