01. Normally, the angle of roof truss with asbestos sheets should not be less than

a. 26 ½°
b. 30°
c. 35°
d. 40°

02. To minimise the total cost of a roof truss, the ratio of the cost of truss to the of purlins shall be

a. 1
b. 2
c. 3
d. 4

03. Generally the purlins are placed at the panel points so as to avoid

a. Axial force in rafter
b. Shear force in rafter
c. Deflection of rafter
d. Bending moment in rafter

04. For the building having a low permeability, the internal wind pressure acting normal to the wall and roof surfaces is taken as

a. Zero
b. 0.2 p
c. 0.5 p
d. 0.7 p

Where p is basic wind pressure

05. The relation between intensity of wind pressure p and velocity of wind V is taken as

a. $P \alpha V$
b. $P \alpha V^2$
c. $P \alpha (1/V)$
d. $P \alpha V^{1/2}$

06. The live load for a sloping roof with slope 15°, where access is not provided to roof, is taken as

a. 0.65 kN/m^2
b. 0.75 kN/m^2
c. 1.35 kN/m^2
d. 1.50 kN/m^2

07. The internal pressure coefficient on walls for buildings with large permeability is taken as

a. 0.2
b. 0.5
c. 0.7
d. 0

08. The basic wind speed is specified at a height 'h' above mean ground level in an open terrain. The value of 'h' is

a. 10 m
b. 20 m
c. 25 m
d. 50 m

09. The risk coefficient k_1 depends on

a. Mean probable design life of structures
b. Basic wind speed
c. Both (a) and (b)
d. None of the above

10. The external wind pressure acting on a roof depends on

a. Degree of permeability of roof
b. Slope of roof
c. Both (a) and (b)
d. None of the above

11. Area of opening for buildings of large permeability is more than

a. 10 % of wall area
b. 20 % of wall area
c. 30 % of wall area
d. 50 % of wall area

12. As per IS : 800, the maximum bending moment for design of purlins can be taken as

a. $\frac{WL}{6}$
b. $\frac{WL}{8}$
c. $\frac{WL}{10}$
d. $\frac{WL}{12}$

Where W is total distributed load including the wind load on the purlins and L is centre to centre distance of supports

13. As per IS : 850, for the purposes of specifying basic wind velocity, the country has been divided into

a. 4 zones
b. 5 zones
c. 6 zones
d. 7 zones

14. The number of seismic zones in which the country has been divided are

a. 3
b. 5
c. 6
d. 7

15. Minimum pitch provided in riveted steel tanks is

a. 1.5 d
b. 2.0 d
c. 2.5 d
d. 3.0 d

Where d is diameter if rivets

16. The allowable tensile stress in structural mild steel plates for steel tank is assumed as

a. 95.0 Mpa on net area
b. 105.0 Mpa on net area
c. 105.5 Mpa on gross area
d. 150.0 Mpa on gross area

17. Steel tanks are mainly designed for

a. Weight of tank
b. Wind pressure
c. Water pressure
d. Earthquake forces

18. Which of the following sections should preferably be used at places where torsion occurs ?

a. Angle section
b. Channel section
c. Box type section
d. Any of the above

19. The capacity of the smallest pressed steel tank is

a. 1000 litre
b. 1650 litre
c. 1950 litre
d. 2450 litre

20. The bracing between two columns of a steel tank will be designed to resist

a. Horizontal shear due to wind or earthquake only
b. Horizontal shear due to wind or earthquake +2.5% of column loads
c. Column loads + 2.5% of Horizontal shear due to wind or earthquake
d. Column loads + full Horizontal shear due to wind or earthquake only

21. The minimum thickness of plates in a steel stack should be

a. 4 mm
b. 5 mm
c. 6 mm
d. 8 mm

22. Maximum pitch of rivets, used in steel stacks, limited to

a. 6 t
b. 10 t
c. 12 t
d. 16 t

Where t is thickness of thinner plate being connected

23. The diameter of base of conical flare of a steel stack is

a. Less than d
b. Equal to d
c. More than d
d. Any of the above

Where d is the diameter of a cylindrical part

24. hudson's formula gives the dead weight of a truss bridge as a function of

a. Bottom chord area
b. Top chord area
c. Effective span of bridge
d. Heaviest axle load of engine

25. If the loaded length of span in metres of a railway steel bridge carrying a single track is 6 m, then impact factor is taken as

a. 0
b. 0.5
c. Between 0.5 and 1.0
d. 1.0

26. If the floor is supported at or near the bottom but top chords of a bridge are not braced, then the bridge is called

a. Deck type
b. Through type
c. Half through type
d. Double deck type

27. The centrifugal force due to curvature of track is assumed to act on the bridge at a height of

a. 1.23 m above the rail level
b. 1.50 m above the rail level
c. 1.83 m above the rail level
d. 2.13 m above the rail level

28. The effect of racking forces is considered in the design of

i. Lateral braces
ii. Chord members

The correct answer is

a. Only (i)
b. Only (ii)
c. Both (i) and (ii)
d. None of the above

29. When the secondary stresses are taken into account alongwith primary stresses. Then the allowable stress is increased by

a. $16\frac{2}{3}\%$
b. 25 %
c. $33\frac{1}{3}\%$
d. 50 %

30. The portal bracing in a struss bridge is used to

a. Transfer load from top of end posts to bearings
b. Keep the rectangular shape of the bridge cross-section
c. Stiffen the structure laterally
d. Prevent the sidesway bucking of top chord