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1) In medium-strength concrete the water-cement ratio should not be less than

- a) 0.25
- b) 0.35
- c) 0.4
- d) 0.45

Answer Option – c)

2) A channel section has

- (a) two webs one flange
- (b) one web two flanges
- (c) one web one flange
- (d) two webs and two flanges

Answer Option – b)

3) The difference between gross diameter and nominal diameter for the rivets up to 25 mm diameter is

- a) 1.0 mm
- b) 1.5 mm
- c) 2.0 mm
- d) 2.5 mm

Answer Option – b)

4) Minimum edge distances specified by the code should be maintained to avoid

- (a) rupture of plate
- (b) shearing of plate
- (c) crushing of plate
- (d) both (b) and (c)

Answer Option – d)

5) What is the maximum permissible longitudinal pitch in staggered riveted compression joints ?

- a) 500 mm

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- b) 400 mm
- c) 300 mm
- d) 100 mm

Answer Option – c)

6) The following are the statements about lug angle used to connected heavily loaded tension member to gusset plates.

- (i) The length of end connection is reduced
- (ii) By using lug angles there will be saving in the gusset plate
- (iii) Cost of connection increases due to additional fasteners and angle required

- (a) only (i) and (ii) are correct.
- (b) only (i) and (iii) are correct.
- (c) only (ii) and (iii) are correct.
- (d) all the three are correct.

Answer Option – d)

7) The overlap of batten plates with the main members in welded connections should be more than

- a) $2t$
- b) $5t$
- c) $6t$
- d) $8t$

Answer Option – b)

8) The effective diameter of a rivet is taken as

- (a) nominal diameter of rivet
- (b) rivet hole diameter
- (c) rivet hole diameter +1.5 mm
- (d) rivet hole diameter –1.5 mm

Answer Option – b)

9) For reversal of stresses the most suitable bolt is

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- a) Black bolt
- b) Turned bolt
- c) Friction grip bolt
- d) None of these

Answer Option – c)

10) Maximum spacing of lacing bars shall be such that the maximum slenderness of the main member between consecutive lacing connection is not more than

- (a) 30
- (b) 40
- (c) 50
- (d) 60

Answer Option – c)

11) The percentage of gypsum added to the clinker during manufacturing process is

- a) 0.2
- b) 0.25 to 0.35
- c) 2.5 to 3.5
- d) 5 to 10

Answer Option – c)

12) A sample of cement is said to be sound when it does not contain free

- a) lime
- b) silica
- c) iron oxide
- d) alumina

Answer Option – a)

13) As per IS specifications, the maximum final setting time for ordinary Portland cement should be

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- a) 30 minutes
- b) 1 hour
- c) 6 hour
- d) 10 hour

Answer Option – d)

14) Turpentine is a natural material obtained from

- (a) oak trees
- (b) pine trees
- (c) mines
- (d) any of the above

Answer Option – b)

15) Lime mortar is generally made with

- a) quick lime
- b) fat lime
- c) hydraulic lime
- d) white lime

Answer Option – c)

16) Commonly used base for paint is

- (a) iron oxide
- (b) red lead
- (c) titanium white
- (d) any one of the above

Answer Option – d)

17) Loss on ignition in Portland cement shall not be more than

- a) 4%
- b) 5%
- c) 3%
- d) 6%

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Answer Option – a)

18) Segregation is due to

- (a) lack of sufficient quantity of fine aggregates
- (b) dropping concrete from a greater height
- (c) over vibration
- (d) all the above

Answer Option – d)

19) Low heat cement contains lower percentage of which of the following

- a) C3A
- b) C3S
- c) C2S
- d) None of these

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Answer Option – a)

20) A thin walled cylindrical vessel of wall thickness 't' and diameter 'd' is filled with gas to a gauge pressure of 'p'. The maximum shear stress on the vessel wall will then be

- a) pd/t
- b) $pd/2t$
- c) $pd/4t$
- d) $pd/8t$

Answer Option – d)

21) A thin cylinder of unit length, thickness 't' and radius 'r' is subjected to internal pressure 'p'. What is the circumferential stress?

- a) $pr/2Et$
- b) $pr/2t$
- c) pr/t
- d) $2pr/t$

Answer Option – c)

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22) The commonly used technique of strengthening thin pressure vessel is

- a) Wire winding
- b) Shrink fitting
- c) Autofrettage
- d) Multi-layered construction

Answer Option – a)

23) Autofrettage is the method of

- a) joining thick cylinders
- b) calculating stresses in thick cylinders
- c) prestressing thick cylinders
- d) increasing the life of thick cylinders

Answer Option – c)

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24) For the same internal diameter, wall thickness, material and internal pressure, the ratio of maximum stress, induced in a thin cylindrical and in a thin spherical pressure vessel will be

- a) 2
- b) $\frac{1}{2}$
- c) 4
- d) $\frac{1}{4}$

Answer Option – a)

25) In a thick-cylinder pressurized from inside, the hoop stress is maximum at

- a) The center of the wall thickness
- b) the outer radius
- c) the inner radius
- d) both the inner and the outer radii

Answer Option – c)

26) A thick cylinder is subjected to an internal pressure of 60 MPa. If the hoop stress on the outer surface is 150 MPa, then the hoop stress on the internal surface is

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- a) 105 MPa
- b) 180 MPa
- c) 210 MPa
- d) 135 MPa

Answer Option – c)

27) The ratio of circumferential stress to longitudinal stress in a thin cylinder subjected to internal hydrostatic pressure is

- a) $\frac{1}{2}$
- b) 1
- c) 2
- d) 4

Answer Option – c)

28) Wahl's factor takes into account <https://www.freshersnow.com/previous-year-question-papers/>

- a) Curvature of the helical wire
- b) Direct shear stress
- c) Both curvature and direct shear effect
- d) Neither a nor b

Answer Option – c)

29) A spring of stiffness 1 KM/m is stretched initially by 100 mm from the under-formed position. The work required to stretch it by another 100 mm is

- a) 5 Nm
- b) 7 Nm
- c) 10 Nm
- d) 15 Nm

Answer Option – d)

30) Which of the following is a weakness of bar chart ?

- a) interdependencies of activities

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- b) project progress
- c) uncertainties
- d) all of the above

Answer Option – d)