

YOUTUBE CLASS

(MIX PRACTICE MOCK TEST - 3)

Q : 1) The net effective cross sectional area calculated in the steel angle tension member design, accounts for
 (a) the tensile force and bolt holes
 (b) the eccentricity of the end connections and the bolt holes
 (c) the effectiveness of the tack connection along the length
 (d) the effectiveness of the end connection

Q : 2) In the design of lacing system for a built-up steel column, the maximum allowable slenderness ratio of a lacing bar is
 (a) 120
 (b) 145
 (c) 180
 (d) 250

Q : 3) The problem of lateral buckling can arise only in those steel beams which have
 (a) moment of inertia about the bending axis larger than the other
 (b) moment of inertia about the bending axis smaller than the other
 (c) fully supported compression flange
 (d) none of these

Q : 4) As per IS : 800 - 1984, the maximum allowable slenderness ratio of compression members carrying forces resulting from dead load and superimposed load is
 (a) 180
 (b) 250
 (c) 300
 (d) 400

Q : 5) Which of the following statements is FALSE?
 (a) Plumb line is along the direction of gravity
 (b) Mean Sea Level (MSL) is used as a reference surface for establishing the horizontal control
 (c) Mean Sea Level (MSL) is a simplification
 (d) Geoid is an equi-potential surface of gravity

Q : 6) Symmetric errors are those errors
 (a) whose effects are cumulative and can be

determined
 (b) on circumference of circumscribing circle
 (c) outside the great triangle
 (d) in the centre of the circumscribing circle

Q : 7) The plan of a map was photo-copied to a reduced size such that a line originally 100mm, measures 90 mm. The original scale of the plan was 1 : 1000. The revised scale is
 (a) 1 : 900
 (b) 1 : 1111
 (c) 1 : 1121
 (d) 1 : 1221

Q : 8) In a closed loop traverse of 1 km total length, the closing errors in departure and latitude are 0.3 m and 0.4 m respectively. The relative precision of this traverse will be
 (a) 1:5000
 (b) 1:4000
 (c) 1:3000
 (d) 1:2000

Q : 9) The staff reading taken on a workshop floor using a level is 0.645 m. The inverted staff reading taken to the bottom of a beam is 2.960 m. The reduced level of the floor is 40.500 m. The reduced level (expressed in m) of the bottom of the beam is
 (a) 44.105
 (b) 43.460
 (c) 42.815
 (d) 41.145

Q : 10) A stable channel is to be designed for a discharge of $Q \text{ m}^3/\text{s}$ with silt factor f as per Lacey's method. The mean flow velocity (m/s) in the channel is obtained by

A : $\left[\frac{Qf^2}{140} \right]^{1/6}$

B : $\left[\frac{Qf^2}{140} \right]^{1/3}$

C : $\left[\frac{Q^2 f^2}{140} \right]^{1/6}$

D : $0.48 \left[\frac{Q}{f} \right]^{1/3}$

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Q : 11) As per the Lacey's method for design of alluvial channels, identify the true statement from the following:

- (a) Wetted perimeter increase with an increase in design discharge
- (b) Hydraulic radius increases an increase in design discharge
- (d) Wetted perimeter increases with increase in silt factor

Q : 12) Super passage is a canal cross-drainage structure ' in which

- (a) canal water flows under pressure below a natural stream
- (b) natural stream water flows under pressure below a canal.
- (c) natural stream water flows with free surface below a canal
- (d) canal water flows with free surface below a natural stream.

Q : 13) If the path of an irrigation canal is below the level of a natural stream, the type of cross-drainage structure provided is

- (a) Aqueduct
- (b) Super passage
- (c) Sluice gate
- (d) Level crossing

Q : 14) For the head regulator, the most severe condition of uplift pressure on the floor occurs when

- (a) the flow in the river is at flood level and canal is running at full supply depth
- (b) the canal runs and the river flow is at high flood level.
- (c) the canal runs at full supply depth and the river flow is at pond level
- (d) the canal runs dry and the river flow is pond level

Q : 15) The shear strength in cohesion less soil is due to _____

- (a) Internal friction
- (b) Cohesion
- (c) Inter granular friction
- (d) Inter particle force

Q : 16) The curve obtained by plotting the normal and shear stress is called as _____

- (a) Mohr's envelope
- (b) Coulomb envelope
- (c) Strength envelope
- (d) Stress envelope

Q : 17) According to Coulomb's the relationship between shear strength and normal stress could be represented by _____

- (a) Linear curve
- (b) Parabolic curve
- (c) Strength line
- (d) None of the mentioned

Q : 18) Shearing resistance can be determined in the laboratory by _____ methods.

- (a) 2
- (b) 6
- (c) 4
- (d) 8

Q : 19) To conduct un-drained test, which of the following is used?

- (a) Slope grids
- (b) Perforated grids
- (c) Plain grids
- (d) All of the mentioned

Q : 20) Based on grain distribution analysis, the D_{10} , D_{30} and D_{60} value of a given soil are 0.23 mm, 0.3 mm and 0.41 mm respectively. As per IS code, the soil classification will be

- A : SW
- B : SP
- C : SM
- D : SC

Q : 21) The capillary of soil to resist shearing stresses is known as:

- A : Consolidation and swelling
- B : Compressibility
- C : Cohesion and thixotropy
- D : Plasticity

Q : 22) When a structural load is applied on a soil stratum, which of the following soil types will have the minimum settlement?

- A : Over consolidated clay stratum

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- B : Clayey silt stratum
- C : Normally silt stratum
- D : Normally clay stratum

Q : 23) A good quality undisturbed soil sample is one which is obtained using a sampling tube having an area ratio of

- A : 8%
- B : 16%
- C : 24%
- D : 32%

Q : 24) Quartzite is a

- A : Silicious rock
- B : Argillaceous rock
- C : Calcareous rock
- D : Aqueous rock

Q : 25) Settlement out a curve using two theodolite methods involves with:

- A : Linear measurement only
- B : Angular measurements only
- C : One linear and one angular measurements
- D : One linear and two angular measurements

Q : 26) Tilt of the staff in tachometric survey increases the intercept if it is:

- A : Away from the telescope pointing up the hill
- B : Towards the telescope pointing up the hill
- C : Away from the telescope pointing down the hill
- D : None of above

Q : 27) A sprinkler irrigation system is suitable when

- A : The land gradient is steep and the soil is easily erodible
- B : The soil is having low permeability
- C : The water table is low
- D : The crops to be grown have deep roots

Q : 28) For two plates of equal thickness, full strength if 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

Q : 29) The effective length of a structural 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 : 2.0 L
- D : 1.5 L

Q : 30) In a plate girder bridge the thickness of web is less than $d'/200$ where d' is the unsupported depth of web. The web plate should be provided with

- A : vertical stiffeners
- B : Horizontal stiffeners
- C : End stiffness
- D : Both vertical and horizontal stiffness

Q : 31) Which one of the following conditions, both elastic and plastic methods of analysis of indeterminate structures have to satisfy?

- A : Yield condition
- B : Mechanism condition
- C : Equilibrium
- D : Compatibility of deformation

Q : 32) The permissible stresses for main structural steel members under dynamic loads should be increased by

- A : 20%
- B : 25%
- C : 30%
- D : 33.33%