Q :) A steel is 25 cm wide and 10 mm thick. If the diameter of the bolt hole is 15 mm, the net section area of the plate is: [ UPRVNL JE 2019 ]

A : 23.5 cm$^2$

B : 82.65 cm$^2$

C : 59.98 cm$^2$

D : 29.6 cm$^2$

Q :) If stirrups of 8 mm θ are provided, find the spacing of stirrups (Given: $\tau_c$ = 0.79 MPa, $\tau_V$ = 1.08 MPa, width of beam b = 250 mm, $f_y$ = 415 N/mm²)
[ UPRVNL JE 2019 ]

A : 280 mm

B : 250 mm

C : 230 mm

D : 200 mm

Q :) Pressurement test is used for the determination of_____.
[ UPPCL AE 2018 ]

A : Poisson's ratio

B : Shear modulus

C : Bulk modulus

D : Young's modulus

Q :) The term 'alternate depth' is used in open channel flow to denote the paired flow depths_____. [ UPPCL AE 2018]

A : Having the same kinetic energy for a given discharge

B : Having the same specific force for a given discharge

C : Having the same froude number

D : Having the same specific energy for a given discharge.

Q :) Gram has a crop period of 21 days and kor depth of 12 cm, then duty of Gram is: [ UPPCL AE 2019 ]

A : 1356 ha/cumec

B : 1811 ha/cumec

C : 1698 ha/cumec

D : 1512 ha/cumec

Q :) Working stress method is based on_____. [ UPPCL AE 2019 ]

A : Maximum shear

B : Linear elastic theory

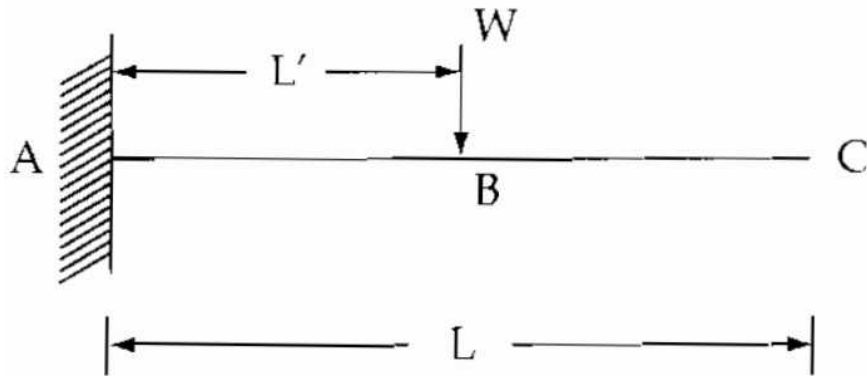C : Maximum distortion

D : Material failure theory

Q :) Which of the following is true in the following figure?
[ MPSC AE paper - 1 2017 ]



A : Deflection at C = deflection at B + $\theta_B$(L-L')

B : Deflection at = L/L' × deflection at B

C : Deflection at C = deflection at B + $\theta_c$(L-L')

D : Both (1) and (3)

Q :) A statically indertermining structure is the one which:
[ MPSC AE 2017 paper - 1 ]

A : cannot be analyzed at all

B : Can be analyzed using equations of statics only

C : Can be analyzed using equations of static and compatibility equations

D : Can be analyzed using equations of compatibility only

Q :) According to Froude's model law [ MPSC AE 2017 ]

A : $\dfrac{V_p \times L_p}{v_p} = \dfrac{L_m \times V_m}{v_m}$

B : $\dfrac{V_m}{\sqrt{g_m L_m}} = \dfrac{V_p}{\sqrt{g_p L_p}}$

C : $\dfrac{V_m}{\sqrt{p_m}} = \dfrac{V_p}{\sqrt{p_p}}$

D : $\dfrac{V_m}{\sqrt{\sigma_m / \rho_m L_m}} = \dfrac{V_P}{\sqrt{\sigma_p / \rho_p L_p}}$
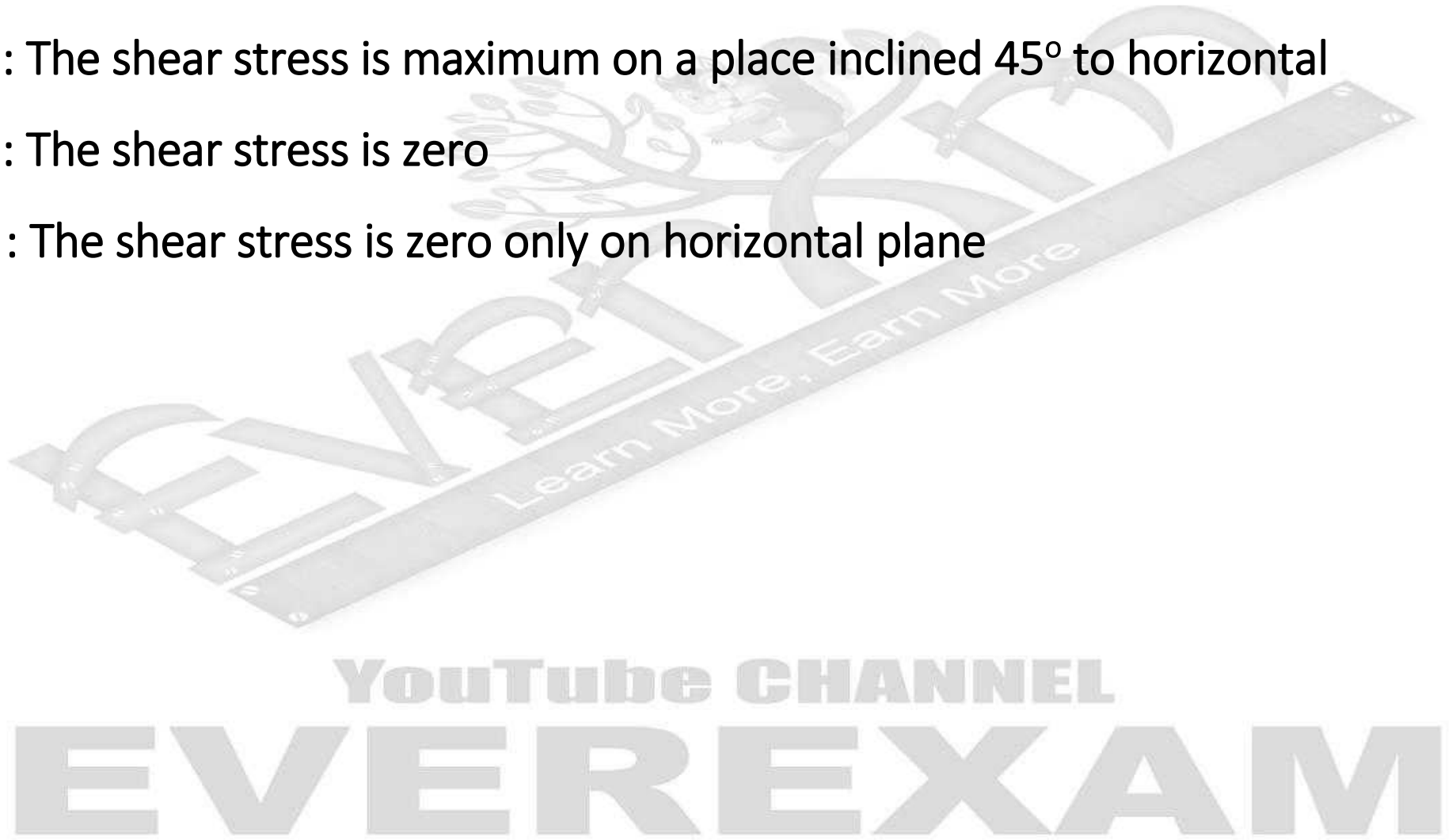
Q :) For a hydrostatic pressure measurement in fluids at rest,
[ MPSC AE 2017 ]

A : The shear stress depends upon the coefficient of viscosity

B : The shear stress is maximum on a place inclined 45° to horizontal

C : The shear stress is zero

D : The shear stress is zero only on horizontal plane

Q :) The scale that is used to measure metres and decimeters and centimeters is called: [ DMRC JE 2020 ]

A : Vernier scale

B : Scale of chords

C : Plain scale

D : Diagonal scale

Q :) The horizontal oil tank in the shape of a circle with a hemispherical end, It is exactly half-full. What is the ratio of the vertical component of the resultant hydraulic thrust on the hemispherical end to that of the horizontal component? [ DMRC JE 2020 ]

A : π

B : 2/π

C : 3π/2

D : π/2

Q :) For an elastic material having modulus of Elasticity E, shear modulus G and Bulk modulus K, which of the following can possibly be true?

[ GPSC AE 2020 ]

A : G=K

B : E=K

C : E=G

D : G=2K

Q :) A long thin cylindrical shell is subjected to internal pressure. The ratio of circumferential stress to longitudinal stress is [ GPSC AE 2020 ]

A : 0.5

B : 0.75

C : 1

D : 2

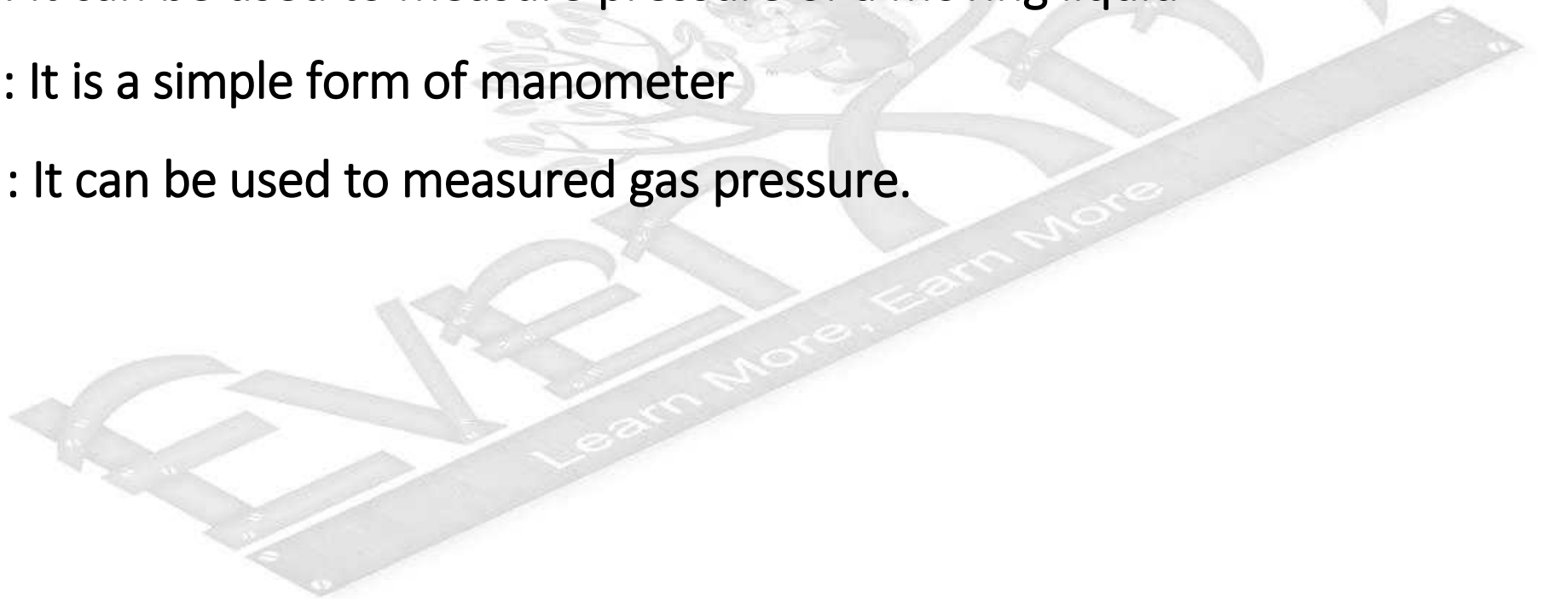Q :) Which of the following is INCORRECT about Piezometer?
[ LMRC JE 2020 ]

A : It can be used to measure the positive gauge pressure of a liquid

B : It can be used to measure pressure of a moving liquid

C : It is a simple form of manometer

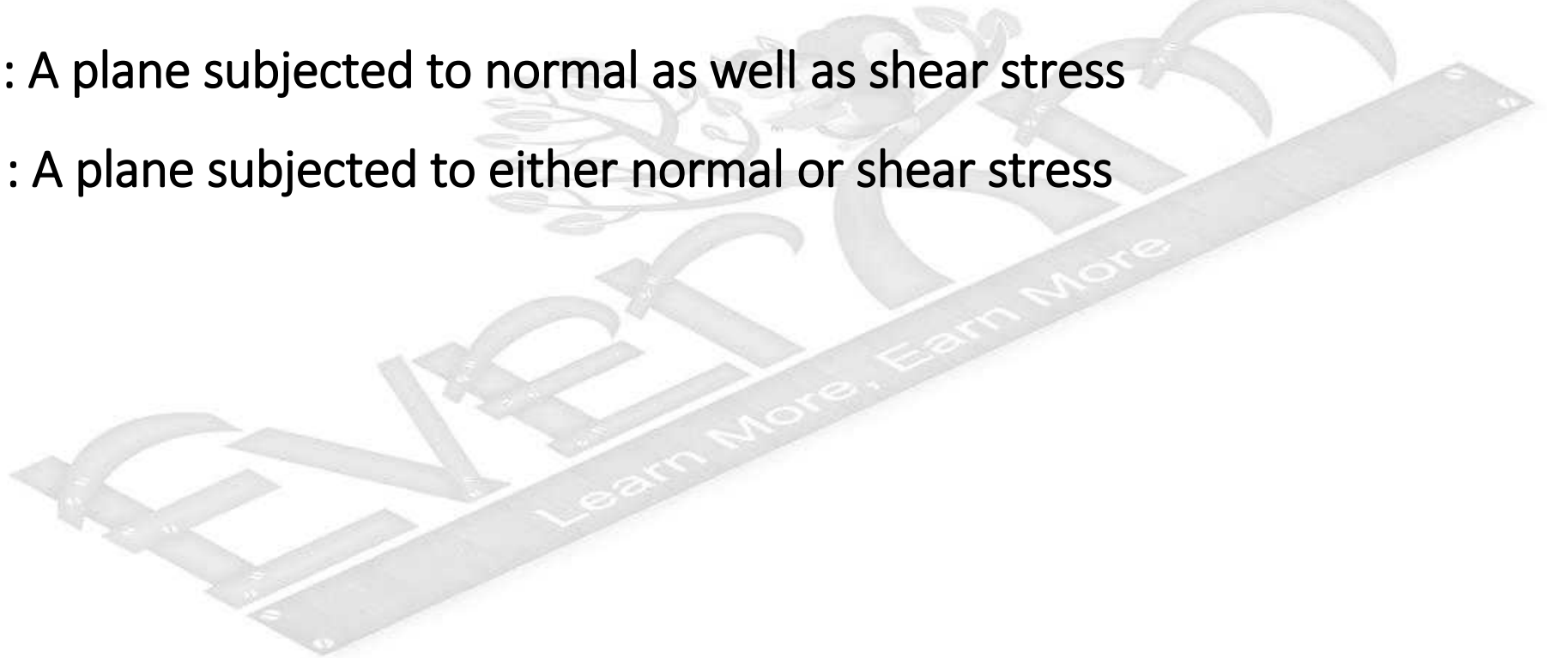D : It can be used to measured gas pressure.

Q :) A principal is defined as: [ LMRC JE 2020 ]

A : A plane subjected to only shear stress

B : A plane subjected to only normal stress but no shear stress

C : A plane subjected to normal as well as shear stress

D : A plane subjected to either normal or shear stress

Q :) What will be the strain in a steel rod of length 200 mm that is subjected to a tensile of 100 kN when the extension of the rod is equal to 0.4 mm? [ LMRC AE 2020 ]

A : 0.02

B : 0.0002

C : 0.002

D : 0.2

Q :) Which one of the following is known as limit state of strength?
[ LMRC AE 2020 ]

A : Loss of equilibrium of structure

B : Corrosion

C : Excessive deflection

D : Cracks

Q :) The optimistic, most likely and pessimistic estimates of time for an activity are 4 days, 11 days and 12 days respectively. The expected completion time of this activity is [ JPSC AE 2020 ]

A : 10 days

B : 11 days

C : 9 dys

D : 5 days

Q :) A discharge of 1 cumec is flowing in a rectangular channel one metre wide at a depth of 20 cm. The bed slope of channel is [ JPSC JE 2020 ]

A : Mild

B : Critical

C : Steep

D : Adverse