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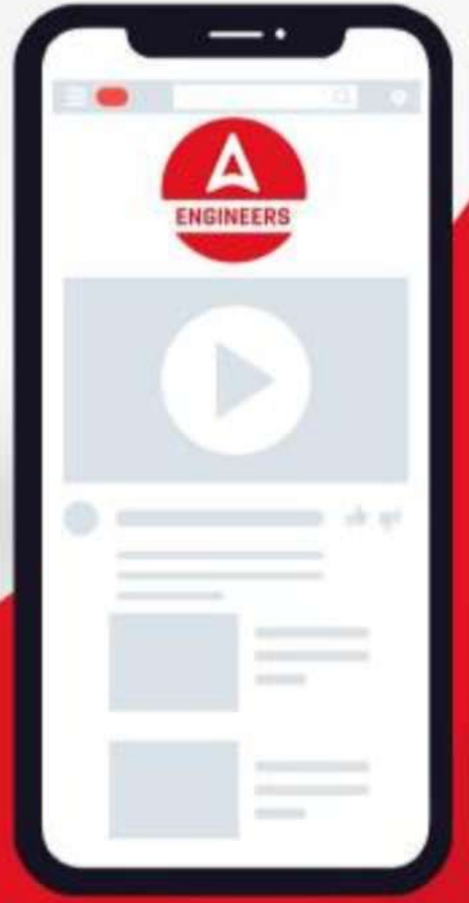

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Q – Proof resilience is the maximum energy stored at:

(a) Limit of proportionality
(b) Elastic limit
(c) Plastic limit
(d) None of these

$R = \frac{\sigma^2 v}{2E}$ ✓

$P.R = \frac{\sigma_E^2 v}{2E}$

Y201 → 78%.

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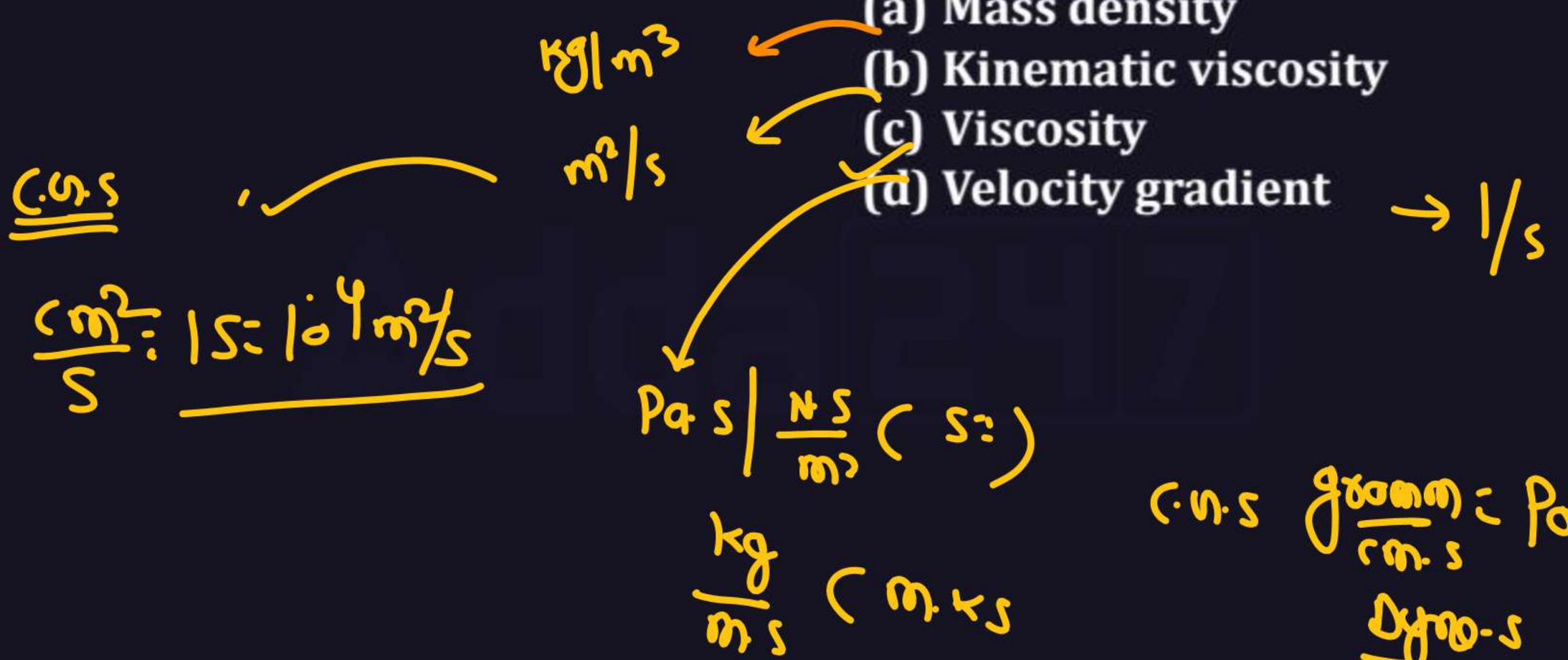
Q – poise is the unit of :

(a) Mass density
(b) Kinematic viscosity
(c) Viscosity
(d) Velocity gradient



Q – The specimen in a Charpy impact test is supported as a :

(a) Cantilever beam

✓ (b) Simply supported beam

(c) Fixed beam

(d) Continuous beam

Charpy impact test :-

↳ Toughness → area of σ vs ϵ upto to fracture

Q – If the diameter of a capillary tube is doubled, the capillary rise will be :

SSC-JE

(a) Unaffected
(b) Doubled
(c) Halved ✓
(d) None of the above

$$h = \frac{4\sigma\cos\theta}{\rho g d}$$

$h \propto \frac{1}{d}$

$h' \propto \frac{1}{2d}$

Ans: $\left(h \propto \frac{1}{d}\right)$

$$h = \frac{4\sigma\cos\theta}{\rho g d}$$

$$\left(\frac{h_1}{h_2} = \frac{\sigma_1\cos\theta_1 \times \rho_2 d_2}{\rho_1 d_1 \quad \sigma_2\cos\theta_2}\right)$$ (Data is insufficient)

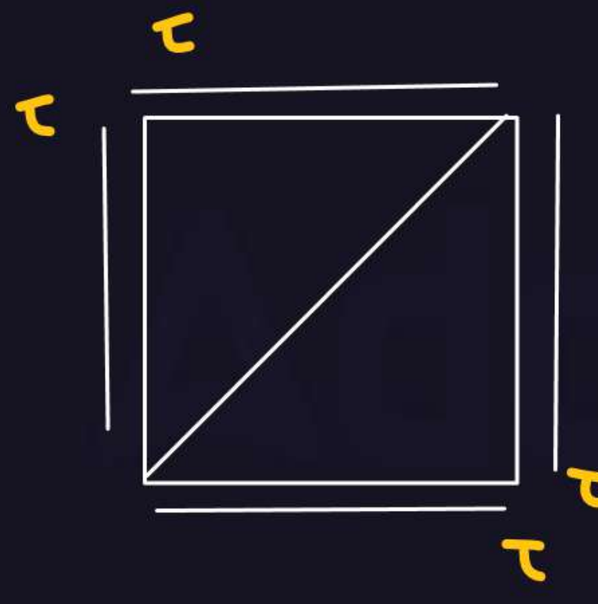
Q – A square block is subjected to a state of simple shear. The linear strain of the diagonal shall be equal to :

(a) Two times the shear strain

(b) The shear strain

(c) Half the shear strain

(d) One-fourth the shear strain



$\gamma = 2\phi$

$\left(\phi = \frac{\gamma}{2}\right)$

Q – The ratio of specific weight of a liquid to the specific weight of pure water at a standard temperature is called :

(a) Compressibility of liquid
(b) Surface tension of liquid
(c) Density of liquid
(d) Specific gravity of liquid ✓

$$S = \frac{\rho_f}{\rho_{S.f}} \Rightarrow \frac{\rho_f \times g}{\rho_{S.f} \times g} = \frac{w_f}{w_{S.f}}$$ ⇒ Hydrometer

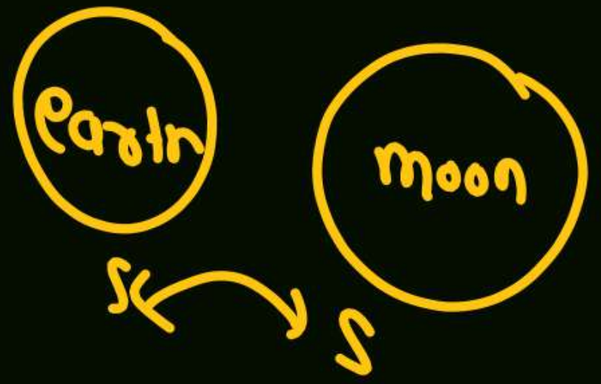
(Libre) Live

$$S = \frac{\rho_f}{\rho_{s.f}}$$

→ abs Property

⇒

आपका परिवार



P → Load

$\sigma = P/A = \frac{P}{bd}$

$\epsilon_v = \frac{(1-2\mu)}{E}\sigma$

$\epsilon_v = \frac{(1-2\mu)}{E}p$

Q – If p' in the tensile stress In a rectangular bar of length 'L' with 'b' anti thickness ths volumetric strain Is given as ;

A. P(1+2μ)/E
B. PL(1-2μ)/bd ✗
C. P(1-2μ)
D. P(1-2μ)/E

Q – Capillary rise is a phenomenon that is attributed to the following property of fluid :

(a) Vapour pressure
(b) Viscosity
(c) Density
(d) Surface tension ✓

Cavi
S.f
Mass density
Capillarity

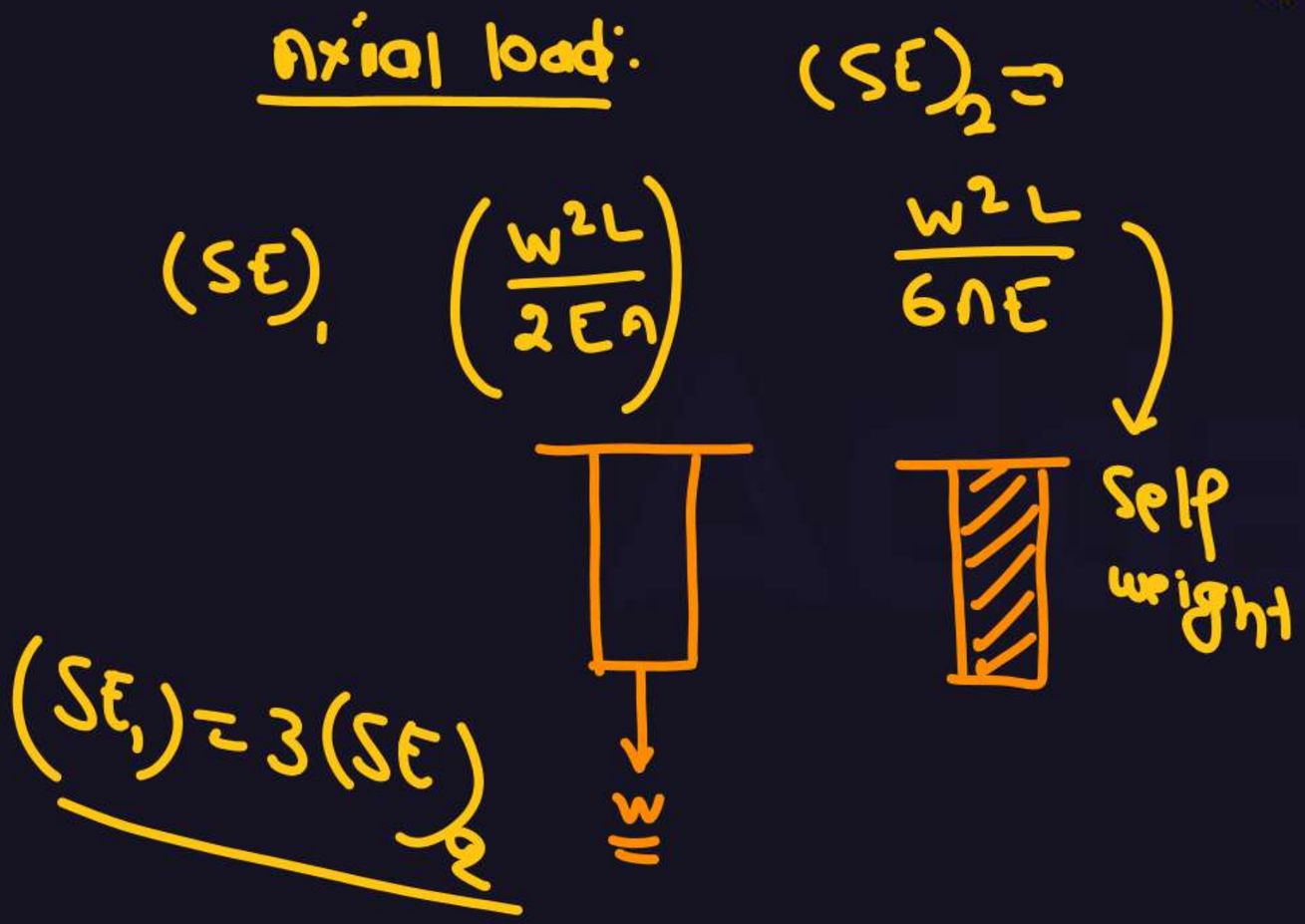
Ans: The fluid Property Capillary is due to

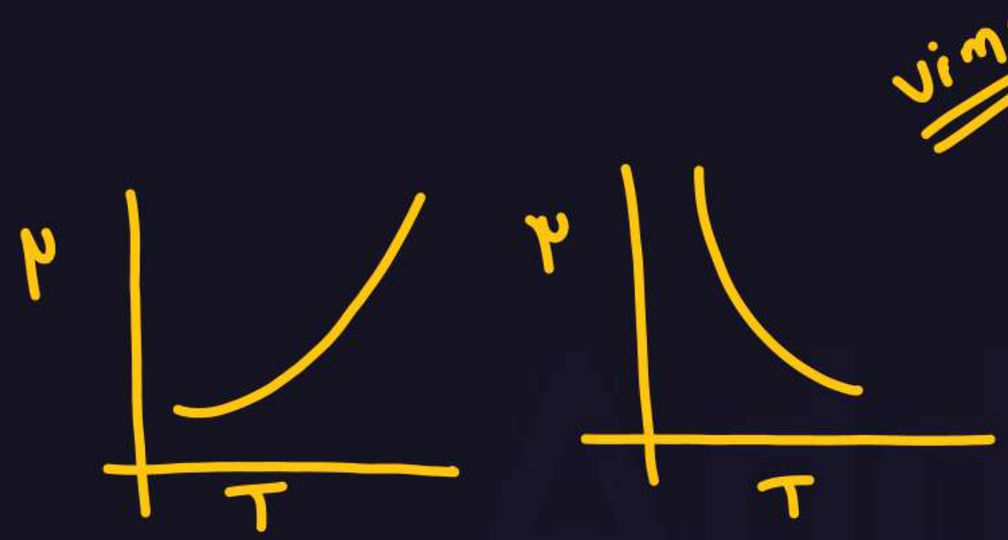
(A) σ
(B) A
(C) Surface tension ✓
(D) Both A & B

Sol: $h = \frac{4\sigma\cos\phi}{\rho g d}$

Q – If a uniform bar is supported at one end in a vertical direction and loaded at the bottom end by a load equal to the weight of the bar, the? strain energy as compared to that due to self weight will be:

(a) Same (b) Half
(c) Twice (d) Thrice





Q – With increase in temperature the viscosity of air and water varies as

(a) Viscosity of air increases and viscosity of water decreases

(b) Viscosity of air increases and viscosity of water increases

(c) Viscosity of air decreases and viscosity of water decreases

(d) Viscosity of air decreases and viscosity of water increases

Q – Ductility of which of the following is the maximum?

(a) Mild steel ✗
(b) Cast iron
(c) Wrought iron
(d) Pig iron

mild

Wrought iron → lowest lowest

(SSC- JE)

Chal

Q – When the ~~adhesion~~ Cohesion between molecules of fluid is greater than adhesion between and the glass, then the free level of fluid in glass tube dipped in the glass vessel will be:

(a) Same as the surface of the fluid

(b) Lower than the surface of the fluid

(c) Higher than the surface of the fluid

(d) Dependent on atmospheric pressure

Q – Strain energy stored in a solid is given as :

$\frac{\sigma^2}{2E} \times V = \frac{\sigma}{2} \times \frac{\sigma}{E} \times V$

$\frac{1}{2} \sigma \times \epsilon \times \text{volume}$ ✓

(a) $\sigma \times \varepsilon \times$ volume

(b) $\sigma \times \varepsilon \times$ area of cross section

(c) $0.5 \times \sigma \times \varepsilon \times l$

(d) $0.5 \times \sigma \times \varepsilon \times$ volume

Q – Which of the following parameter is not associated with viscosity

(a) Red wood
(b) Say bolt
(c) Engler
(d) Orsat

Q – The value of mass density in kg-sec^2/m^4 for water at 0°C is

(a) 1
(b) 1000
(c) 100
(d) 101.9

Q – The modulus of elasticity of steel is :

(a) 2×10^4 MPa

(b) 1.2×10^5 MPa

(c) 2×10^5 MPa

(d) 2 x 10 MPa

Q – Adiabatic bulk modulus of air will be when it compressed upto 100Mpa

A .100Mpa
B. 140Mpa ✓
C. 166.66Mpa
D. 120Mpa

$(K_T = P)$

$K_T = 100$

So like

सेक

$K_a = \gamma P$

$= 1.4 \times 100$

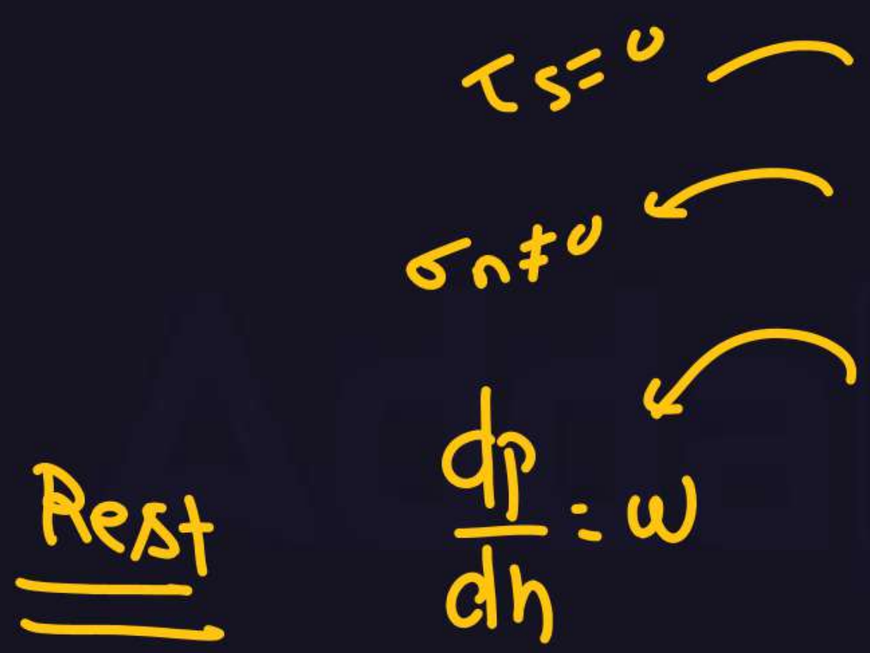
$= 140 mpa$

Q – For the same value of total load maximum height of udl load in SSB will be w.r.t to Uvl load will be

A. 2
B. 1/2 ✓
C. Equal
D. None

Q – When fluid is at rest condition then which one is correct

A. Shear stress is zero
B. Normal stress does not equal to zero
C. Hydrostatic static law applicable
D. All of the above



Q – When % carbon increase then fracture strain will be

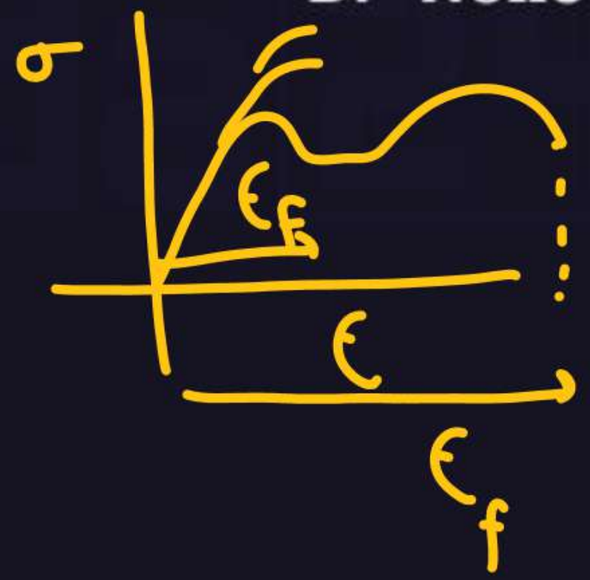
A. increase
B. Decrease ✓
C. Constant
D. None

$\epsilon_f \uparrow \rightarrow$ YP ↑

D.V.

M.V.

Strength ↑



Q – Unit of surface tension in CGS system will be

A. N/m
B. Joule /m^2
C. Dyne/cm
D kg/sec^2

$\sigma = f/L$

$\sigma = w/\Delta A$

$[MT^{-2}]$

MKS

C.G.S

g/cm

gm/sec2

$$\sigma_f = \frac{P}{A_i}$$

$$\sigma_f = \frac{100}{0.5}$$

$$= 200 \text{kPa}$$

Q – A bar is subjected to 100kn under the area of 1m2 then find out stress at fracture point when necked area is $0.5m^2$: -

A. A 100kpa
B. 200kpa ✓
C. 300kpa
D. None

Q – 0

A. 0

B. 0

C. 0

D. 0