

1) Write 'true' or 'false' for each statement.

1x5=5

- a) The SI unit of force is Kgf.
- b) For a given thrust, pressure is more on a surface of large area.
- c) Gases exerts pressure in all direction.
- d) A force always produces both the linear & turning motion.
- e) The atmospheric pressure is nearly 10^5 Pa.

2) Select the correct alternatives

1x5=5

- a) SI unit of moment of force is
 - i) N
 - ii) Ncm
 - iii) Kgf
 - iv) Nm

- b) The pressure and thrust are related as -

- i) ~~Pressure = Thrust / Area~~
ii) Pressure = Thrust / Area
- iii) Pressure = Thrust × Area
iv) Pressure = Area / Thrust

- c) The atmospheric pressure at sea level is nearly -

- i) 10 Pa
ii) 100,000 Pa
- iii) 10,000 Pa
iv) 100 Pa

- d) A body weighing 5 Kgf placed on a surface of area 0.1m^2 exerts a thrust on the surface equal to -

- i) 50 Kgf
ii) 50 Kgf m^{-2}
- iii) 5 Kgf
iv) 5 Kgf m^{-2}

- e) Pressure inside a liquid increases with -

- i) increase in depth
- ii) decrease in depth
- iii) decrease in density
- iv) none of these.

3) Fill in the blanks.

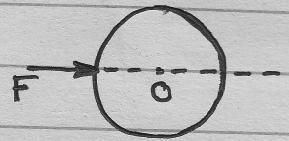
$$1 \times 10 = 10$$

- i) The unit of thrust is _____.
- ii) Moment of force = _____ \times distance of force from the point of turn.
- iii) 1 Kgf = _____ N (nearly)
- iv) Pressure in a liquid _____ with the depth.
- v) Pressure is reduced if _____ increases.
- vi) The unit of pressure in SI is _____.
- vii) In a door, handle is pivoted _____ from the hinges.
- viii) The atmospheric pressure on earth surface is nearly _____.
- ix) Thrust is the _____ force acting on a surface.
- x) Pressure is the thrust acting on a surface of _____ area.

4) Answer the following questions.

$$2 \times 10 = 20$$

- a) Define the term Moment of Force.
- b) What is Clockwise and anti-clockwise moment of force?
- c) What are the difference between Pressure and Thrust.
- d) What is thrust. State the unit of thrust. On what factors does the effect of thrust on a surface depends.
- e) Define 1 Newton. Write some limitations of forces. How a force is represented. ~~Is~~ Force is which quantity and why.
- f) When does a man exert more pressure on the floor; while standing or while walking.
- g)



- In the given figure a force F is applied in a direction passing through the pivoted point O of the ~~body~~. Will the body rotate? Give reason to support your answer.
- h) Why a dam has broader wall at the bottom than at the top.
 - i) Why do camels or elephants have broad feet?
 - j) Explain the following-
- i) The speaker has a long handle
 - ii) It is easier to open the door by pushing it at its free end.

Solve the following problems

$$\underline{2 \times 5 = 10}$$

- 1) A force of 1200 N acts on the surface of area 10 cm^2 normally. What would be the thrust and pressure on the surface.
- 2) The pressure of a gas contained in a cylinder with a movable piston is 300 Pa. The area of the piston is 50 cm^2 . Calculate the force ~~acting on~~ exerted on the piston.
- 3) A swimming pool of
- 4) The foot of an elephant has an area of 275 cm^2 . If the weight of the elephant is 2200 kg. Find the pressure exerted by the elephant on the ground.
- 5) The base of a container measures $150 \text{ mm} \times 200 \text{ mm}$. It is placed on a table top. If the weight of the container is 60 N. What pressure exerted by the container on the table top.
- 6) A boy weighing 60 kgf stands on a platform of dimension $2.5 \text{ cm} \times 0.5 \text{ cm}$. What pressure in pascal does he exerts.