

DATE: - 15-07-2024

TENDER HEART HIGH SCHOOL, SEC-33B, CHD.

TEACHER NAME: -

CLASS - 8

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SUB: - PHYSICS : CH-3 (Machines)

PRACTICE - ASSIGNMENT

Q1: Why a single movable pulley is superior to single fixed pulley system? (2)

Q2: Why is the nut cracker called the lever of second order, whereas fire-tongs the lever of 3rd order? (2)

Q3: (a) A pulley system has a velocity ratio 3. Draw a labelled diagram of the pulley system.

(b) If a load of 750gf is lifted by the movable block of mass 150g in the pulley system. Calculate the effort applied to do so. $[g = 1000 \text{ cm/s}^2]$ (4)

Ans 300gf

Q4: $\rightarrow$ Name a class of lever which always has mechanical advantage more than one (1). By drawing neat diagram show, why the mechanical advantage of a lever shown by you is more than one. (2)

Q5: $\rightarrow$ A pulley system has five pulleys in all and 90% efficient. Calculate: -

(a) The mechanical Advantage

Ans [4.5]

(b) The effort required to lift a load of 1000N

[Ans 222.2N]

(2)

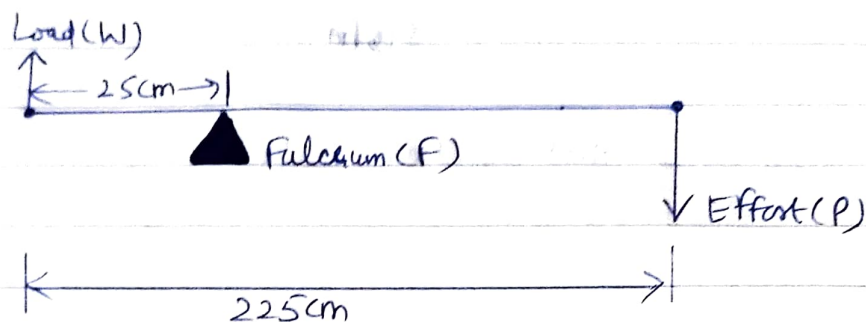
Q6: - Give the class of lever to which each belongs.

(a) Scissors (b) Pliers (c) Nutcracker (d) Bottle opener

Q7: $\rightarrow$ mechanical advantage (MA) of a real or actual machine is -

- (a) Always greater than its Velocity Ratio (VR)
 (b) Always equal to its VR
 (c) Always less than its VR
 (d) Always less than one.

Q8: →



- (a) Name the lever to which class it belongs.
 (b) Calculate mechanical Advantage.

[4]

Q9: → A scissor is a speed multiplier or a force multiplier?

Q10: A pulley system with $VR = 4$ is used to lift a load of 175 kgf through a vertical height of 15 m. The effort required is 50 kgf in the downward direction.
 ($g = 10 \text{ N/kg}$)

[4]

Calculate: —

- (a) Distance moved by the effort.
 (b) Work done by the effort (*Hint: $\text{Effort} \times d_E$)
 (c) M.A of the pulley system
 (d) Efficiency of pulley system

Q11: ~~State~~ State purposes of a simple machine?

[3]

Q12: When is a machine called as an ideal machine? [1]