The Brigade School@ G and W

Total points **13/15** ❓

Class 10   Physics   Marks 15

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Name *

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School *

TBSG ▼

Class: *

10 A ▼

✓ 1. (i) Copy the diagram of the forearm and indicate the position of effort, **3/3** load and fulcrum. (ii) to which class of lever does it belong? (iii) what is the MA of this class of lever? *

(ii) Class III
(iii) Less than 1

Feedback

(i) page 55 of text
(ii) Class 3 lever
(iii)) less than 1 [1 x 3]

✓ 2. (i) Draw a labelled diagram of a block and tackle system with 2 pulleys **4/4** in each block. Indicate the direction of load, effort and tension in the string. (ii) Write the relation between the load and effort of this pulley system. *

(ii) Load = Effort x Number of pulleys.

Feedback

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Upload your file for Q 1and 2 here.

PDF forearm - Manan …   PDF pulley - Manan M…

✓ 3. (i) Write a relation expressing the mechanical advantage of a lever. (ii) 3/3
   Give 2 reasons as to why the efficiency of a single movable pulley is
   always less than 100%. *

(i) Mechanical Advantage (MA) = Effort Arm (EA) / Load Arm (LA)
(ii) ~Due to the friction in the pulley bearing or at axle
    ~Weight of the pulley and string

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(i) MA= Effort arm / load arm
(ii) Because of friction of the pulley and weight of the pulley

✗ 4. (i) In the diagram identify to which class of lever does it belong. (ii) If 0/2
   FB = 50 cm and BA = 50 cm, Find the MA of the lever. *
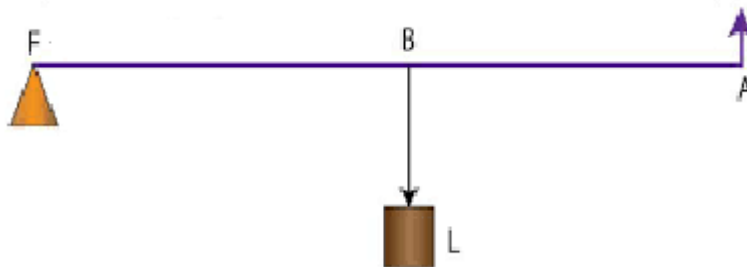
(i) Class I
(ii) MA = EA / LA = 50 / 50 = 1
    Thus, MA of the lever is 1.

Feedback

(i) Class 2
(ii) MA= EA /LA = 100/50 =2

✓ 5. A crowbar 2 m long is pivoted about a point 10 cm from its tip. (i)   3/3
Calculate the mechanical advantage of the crowbar. (ii) What is the least
force which must be applied at the other end to displace a load of
100kgf *

(i) MA = EA / LA = (200-10)/10 = 190/10 = 19
(ii) Effort(E) x Effort Arm(EA) = Load(L) x Load Arm(LA)
    E x 190 = 100 x 10
    E = 1000/190
    E = 100/19
    E = 5.26 kgf

Feedback

(i) MA = EA/LA = 190/10 = 19
(ii) E = MA /L = 100/19 = 5.26 kgf

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