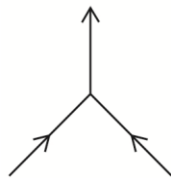




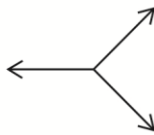
Equilibrium of Forces

❖ Answer all the questions.

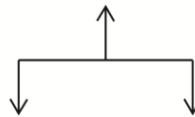
01. The correct diagram of 3 equilibrium forces.



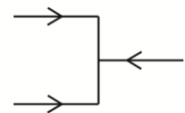
(1).



(2).



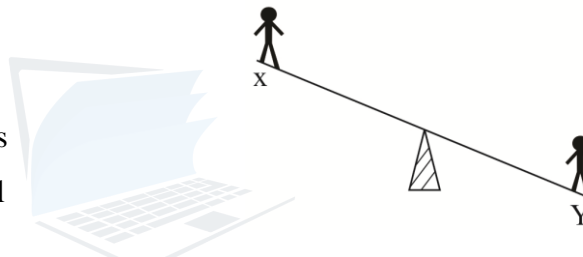
(3).



(4).

02. The correct step should be taken to bring the following system to the equilibrium is

- (1). Walk towards the terminal X
- (2). walk towards the terminal Y
- (3). Walk to both X and Y terminals
- (4). Walk away from the Y terminal



03. The following figures illustrate two instances of equilibrium of three objects A, B and C.



If the weight of the object A is 2 N, what is the weight of the object C?

- (1). 3 N
- (2). 4 N
- (3). 6 N
- (4). 9 N

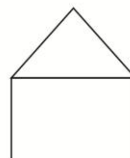
04. Given below are equilibria of several forces.



A



B



C

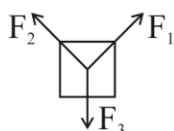


D

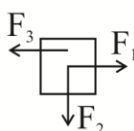
Of these the cases where three forces are in equilibrium are

- (1). A, B and C
- (2). B, C and D
- (3). A, C and D
- (4). A, B and D

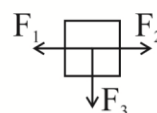
05. An object is in equilibrium under three coplanar forces of F_1 , F_2 and F_3 . If $F_1 = F_2$ which of the following diagrams correctly represents the three forces?



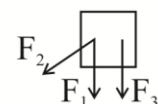
(1).



(2).



(3).

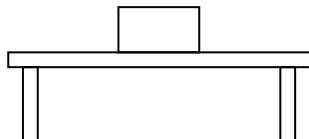


(4).

Semi structured essay

01. An object keep in equilibrium by applying two or more than two force. The object on a table is given below.

(i). Draw the forces acting on the object.



(ii). Identify that forces.

(iii). What are the requirements should be satisfied for the equilibrium of an object under three non-parallel forces?

(iv). Give an example for the equilibrium mention in (iii) above.

02. Given below figures are about the 2 games played by children.

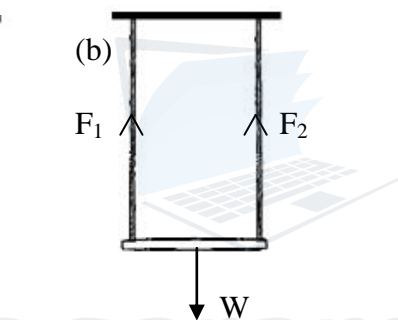


Figure 1

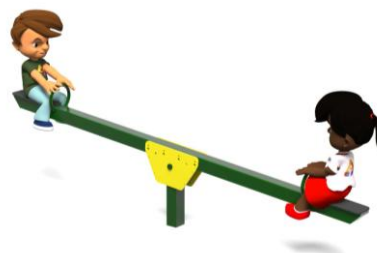


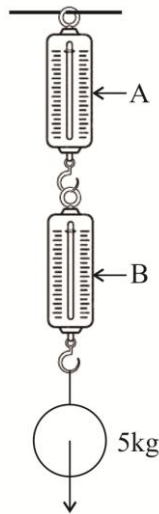
Figure 2

Figure (a) shows the child that sat on a swing.

Figure (b) shows the way that forces act on the swing.

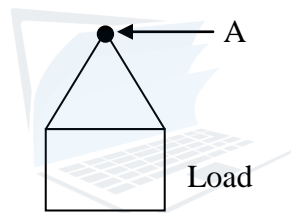
- (i). Write a relationship among F_1 , F_2 and W
- (ii). Which forces are shown by the W , F_1 and F_2
- (iii). Write 2 conditions that must be satisfied to remain the swing with child in equilibrium under the action of 3 forces.
- (iv). If the mass of each child is 30kg.
 - (a). Calculate the resultant force of the figure II.
 - (b). What will happen to the equilibrium seesaw, if one child is replaced with another child having a mass of 40kg?

- (v). A mass of 5kg is hung by using 2 Newton balances calibrated with Newtons. Write the relevant readings of the A and B.



03. A load is hung by a string as shown below figure on point A.

- (i). Draw the figure in the answer sheet and mark the forces on it.



- (ii). Write the type of equilibrium that exists in this situation.
 (iii). Write 2 conditions that should be fulfilled to remain the load at equilibrium position.
 (iv). State another example that having above type of equilibrium.
 (v). This shows the box suspended by four strings attached to the four corners. What is the tension force acting on each string?

