Answer Sheet for Mechanical Reasoning.

Give yourself exactly 20 minutes to answer these questions. You have to choose the answer you think is correct, by darkening the box on the answer sheet which corresponds with the answer you choose. As an example; if 'C' was the answer you choose, you would darken the box marked with a 'C'. A B C D

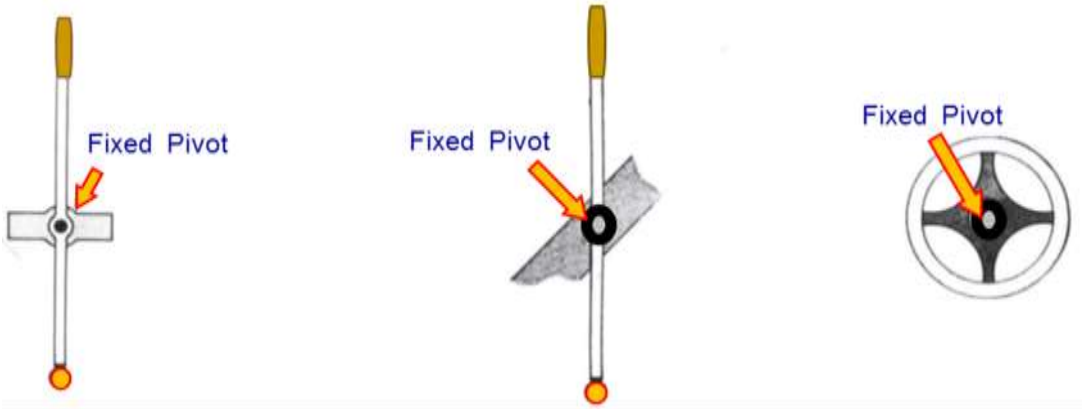
1.	A	B	C	D	17.	A	B	C	D
2.	A	B	C	D	18.	A	B	C	D
3.	A	B	C	D	19.	A	B	C	D
4.	A	B	C	D	20.	A	B	C	D
5.	A	B	C	D	21.	A	B	C	D
6.	A	B	C	D	22.	A	B	C	D
7.	A	B	C	D	23.	A	B	C	D
8.	A	B	C	D	24.	A	B	C	D
9.	A	B	C	D	25.	A	B	C	D
10.	A	B	C	D	26.	A	B	C	D
11.	A	B	C	D	27.	A	B	C	D
12.	A	B	C	D	28.	A	B	C	D
13.	A	B	C	D	29.	A	B	C	D
14.	A	B	C	D	30.	A	B	C	D
15.	A	B	C	D	31.	A	B	C	D
16.	A	B	C	D	32.	A	B	C	D

Practice Sample Test for Mechanical Reasoning.

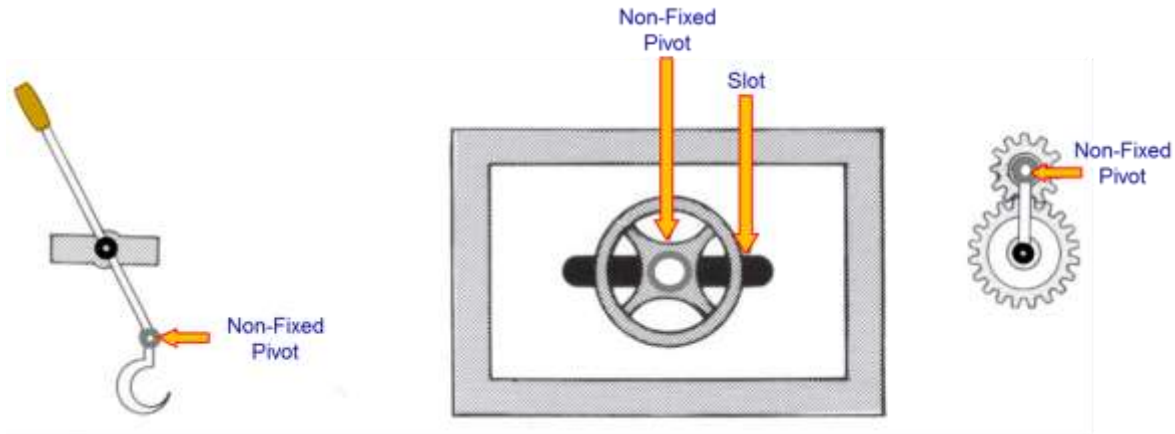
Before you start this practice test for mechanical reasoning, a couple of mechanical explanations will be provided:

A pivot is a pin or axle around which a lever or wheel can turn.

A **fixed pivot** is a pin or axle around which a lever or wheel can turn, but the fixed pivot itself **does not move**. A fixed pivot is indicated by a black dot or circle, as demonstrated below in this example.

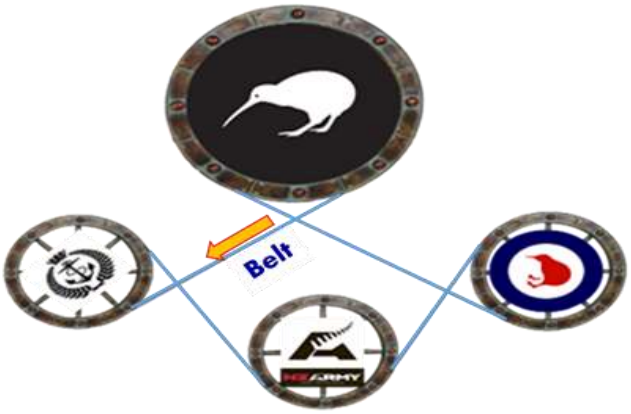


A **non-fixed pivot** is also an axle or pin around which a wheel or lever can move, but the non-fixed pivot itself **can move**. A non-fixed pivot is indicated by a clear dot or grey circle, as demonstrated in this example.



Give yourself twenty minutes to answer these questions. Record your answers on the answer sheet. Each problem in this practice test is accompanied by four different answers, of which only one is correct. You have to choose the answer you think is correct, by darkening the box on the answer sheet which corresponds with the answer you choose. As an example; if 'C' was the answer you choose, you would darken the box marked with a 'C'. A B C D

1



What is the greatest number of wheels which can turn clockwise at the same time?

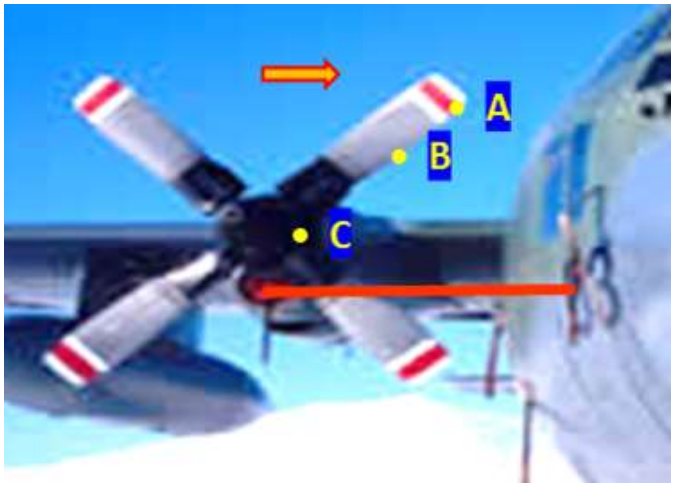
a) One.

b) Two.

c) Three.

d) Four.

2



The RNZAF C-130 propeller is turning clockwise, as shown by the arrow. Which yellow point will touch the red line first?

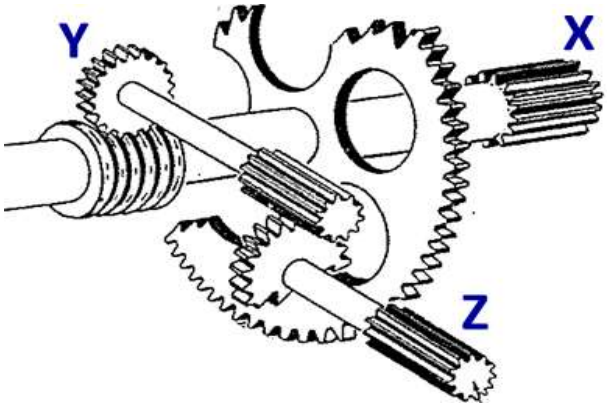
a) A.

b) B.

c) C.

d) All will touch the red line at the same time.

3



If gear X turns and drives gear Y, gear Z will

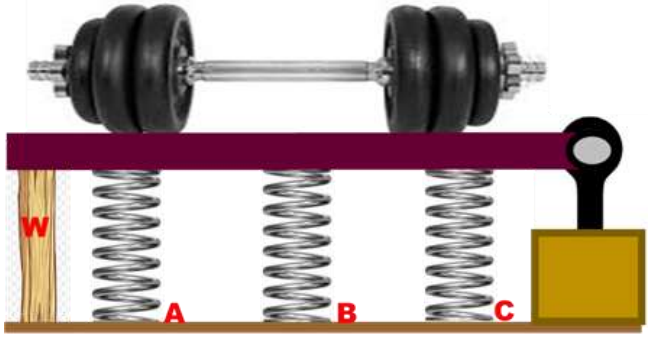
a) Stay still.

b) Turn slower than Y.

c) Turn faster than Y.

d) Turn at the same speed as Y.

4



If the piece of wood W is removed, which spring will have to bear the greatest pressure?

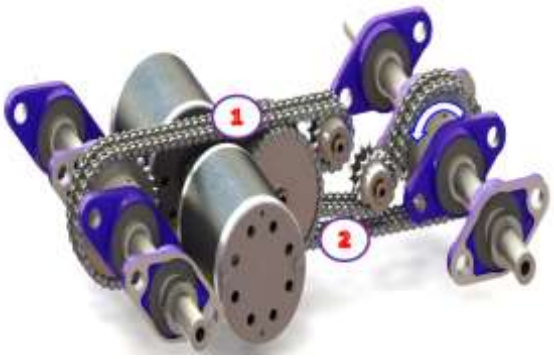
a) A.

b) B.

c) C.

d) All will have to bear the same pressure.

5



1 and 2 are attached to the chain which runs around this vertical system of wheels. If the drive shaft moves the chain down, as shown by the arrow, how will 1 and 2 move?

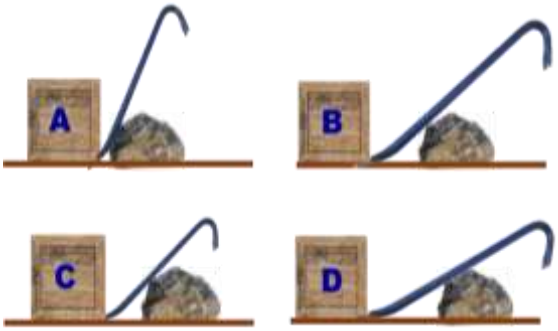
a) 1 to the right, 2 to the left.

b) 1 to the left, 2 to the right.

c) Both 1 and 2 to the left.

d) Both 1 and 2 to the right.

6



In which one of A, B, C, and D would the crate be most difficult to move with the crowbar?

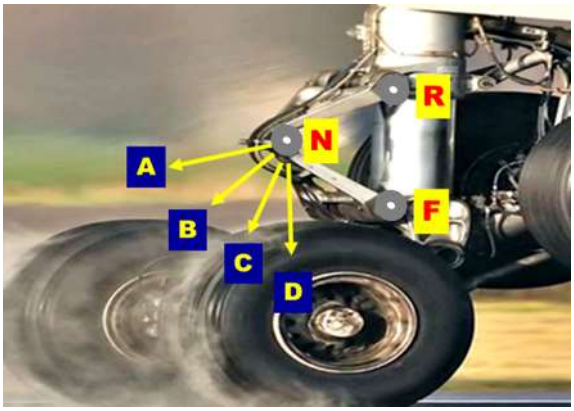
a) A.

b) B.

c) C.

d) D.

7



As non-fixed pivot R moves down the RNZAF 757 landing gear towards non-fixed pivot F, what path will non-fixed pivot N follow?

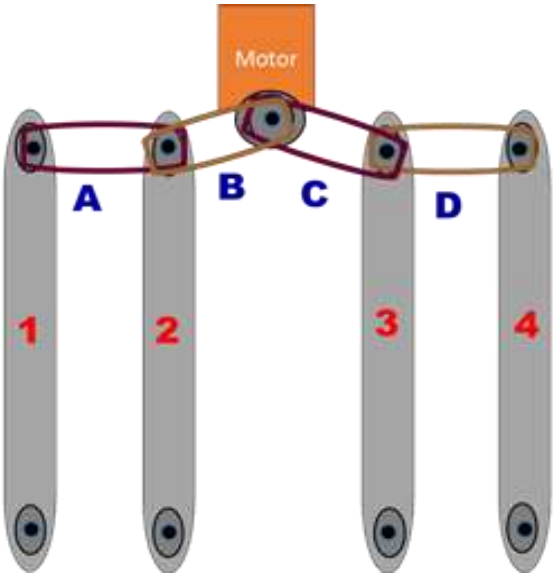
a) A.

b) B.

c) C.

d) D.

8



In an airport baggage handling area, the motor in the middle uses belts A, B, C and D to drive the 1st, 2nd, 3rd and 4th baggage conveyors. If the 3rd and 4th conveyors are turning but the 1st and 2nd conveyors are not turning, which one of the belts is most likely to have broken?

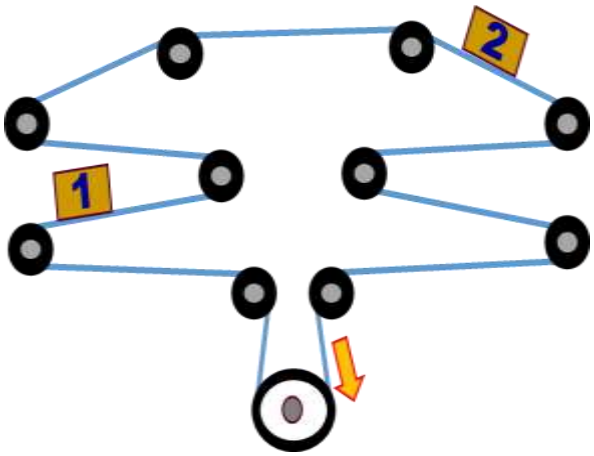
a) A.

b) B.

c) C.

d) D.

9



1 and 2 are boxes attached to the cable which runs around this vertical system of pulley wheels. If the cable is pulled down, as shown by the arrow, how will 1 and 2 boxes move?

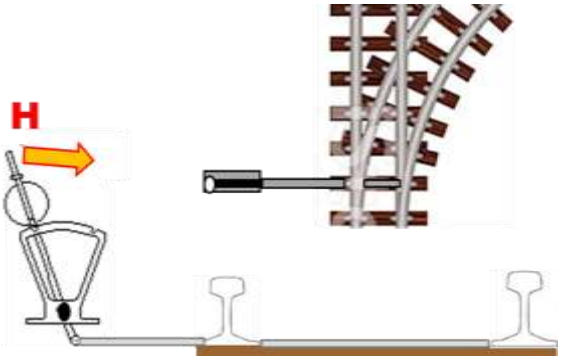
a) 1 moves to the left, 2 moves to the right.

b) 1 moves to the right, 2 moves to the left.

c) Both 1 and 2 will move to the left.

d) Both 1 and 2 will move to the right.

10



If handle H is pulled to the right, as shown by the arrow, how will the train track junction move?

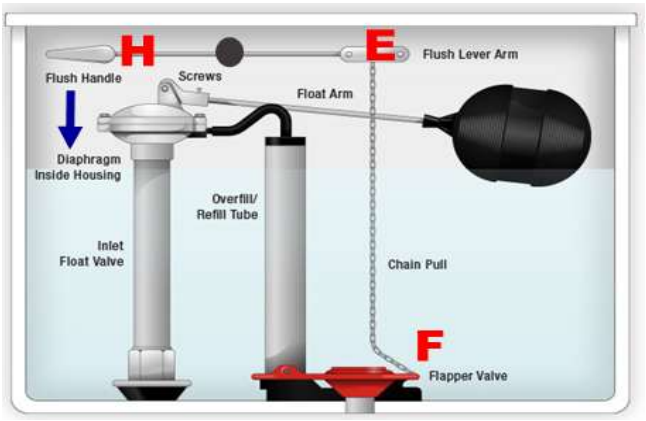
a) Junction stays still.

b) Junction moves to the right.

c) Junction moves to the left.

d) Junction moves to and fro.

11



If handle H is pulled down, as shown by the arrow, how will ends E and F move?

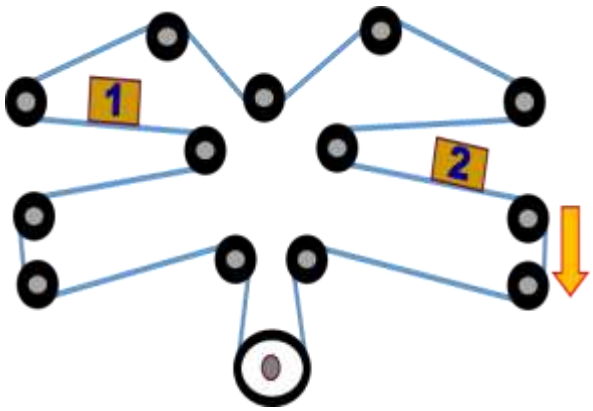
a) E moves down and F moves up.

b) E moves up and F moves down.

c) E stays still while F moves up.

d) Both E and F move up.

12



1 and 2 are crates attached to the wire which runs around this vertical system of wheels. If the wire is pulled down, as shown by the arrow, how will 1 and 2 move?

a) 1 move to the left, 2 move to the right.

b) 1 move to the right, 2 move to the left.

c) Both 1 and 2 will move to the left.

d) Both 1 and 2 will move to the right.

13

If gear 1 and gear 5 turn clockwise, as shown by the arrows, gear 3 will:

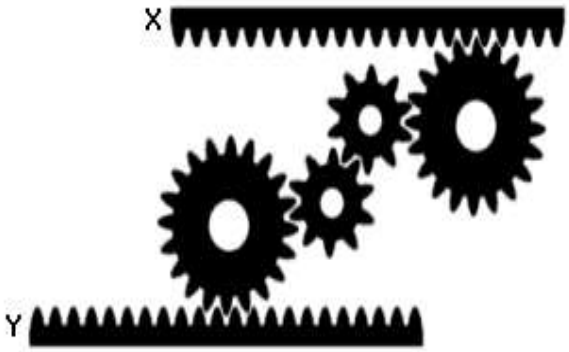
a) Turn clockwise

b) Turn anticlockwise

c) Turn either to and fro

d) Jam the mechanism.

14



If bar Y moves right at a constant speed. How does bar X move?

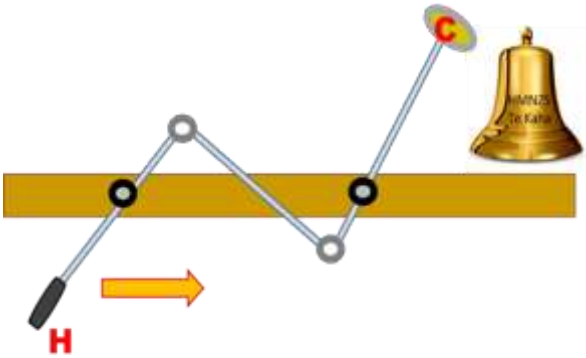
a) It would be jammed.

b) Gliding to the left at the same speed.

c) Gliding to the right at the same speed.

d) Gliding to the left, faster.

15



If handle H is pulled to the right, as shown by the arrow, bell clapper C will:

a) It will move up.

b) It will move down.

c) It will move up and then down.

d) It will not move.

16

To lift the gym weight up 1 metre, the handle must be pulled down by:

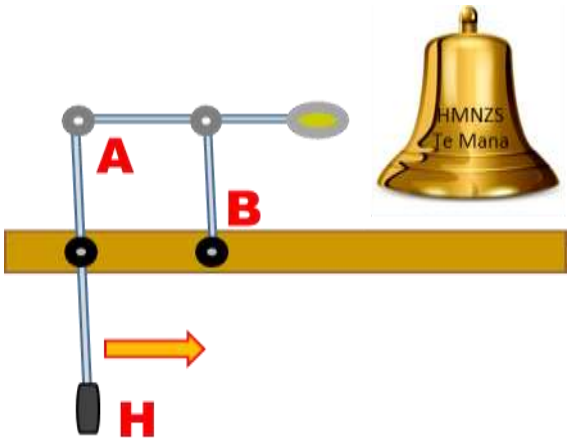
a) 10 centimetres.

b) 20 centimetres.

c) 50 centimetres.

d) 100 centimetres.

17



If handle H is pulled to the right, as shown by the arrow, how will the bell clapper move?

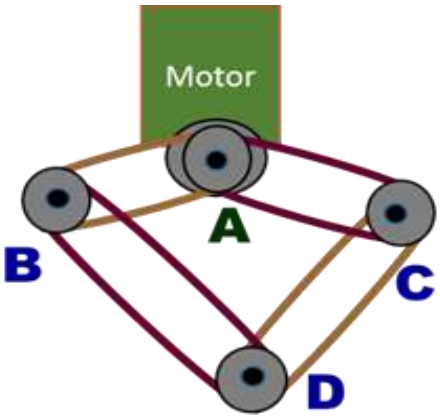
a) Closer to fixed pivot B, closer to non-fixed pivot A.

b) Closer to fixed pivot B, same distance from non-fixed pivot A.

c) Same distance from fixed pivot B, closer to non-fixed pivot A.

d) Same distance from fixed pivot B and from non-fixed pivot A.

18



This mechanism, in which the motor A uses belts to drive wheels B, C and D is:

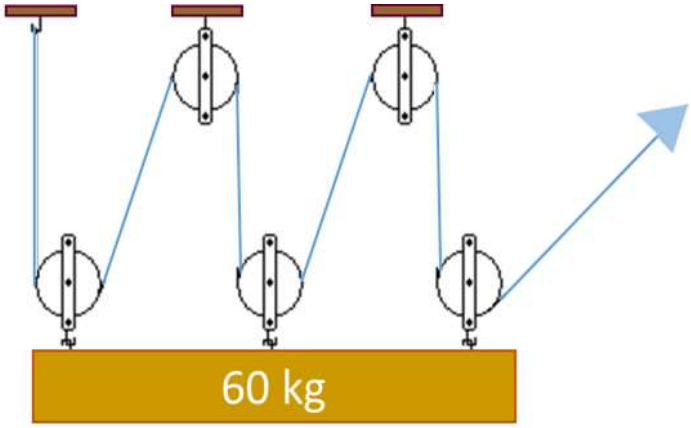
a) Workable, but only if the motor turns clockwise.

b) Workable, no matter which way the motor turns.

c) Unworkable, because wheels B and C exert opposite forces on wheel D.

d) Unworkable, because wheel D turns at a different speed to wheels B and C.

19



How much force is required to lift the 60 kg wooden beam?

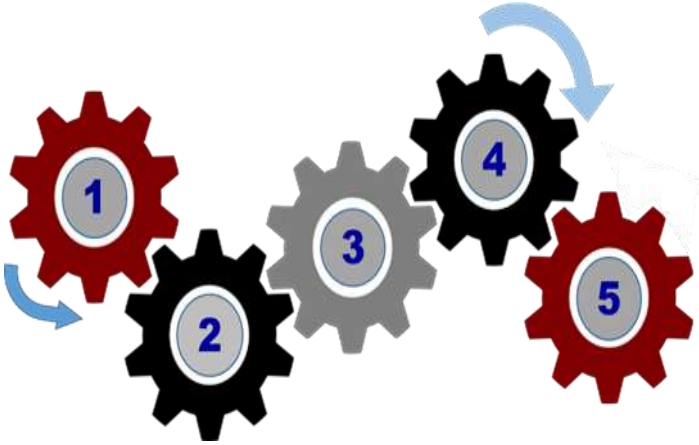
a) 60 kg.

b) 30 kg.

c) 10 kg.

d) 6 kg.

20



If gear 1 turns anti-clockwise and gear 4 turns clockwise, as shown by the arrows, gear 3 will:

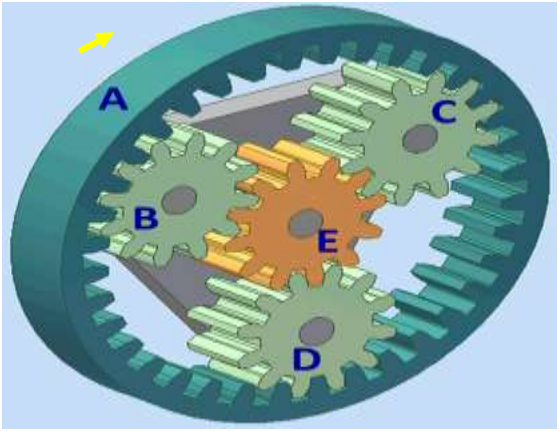
a) Turn clockwise.

b) Turn anticlockwise.

c) Turn either to and fro.

d) Jam the mechanism.

21



Gear A turns clockwise, as shown by the arrow, and drives all the other gears. How many gears turn clockwise in total?

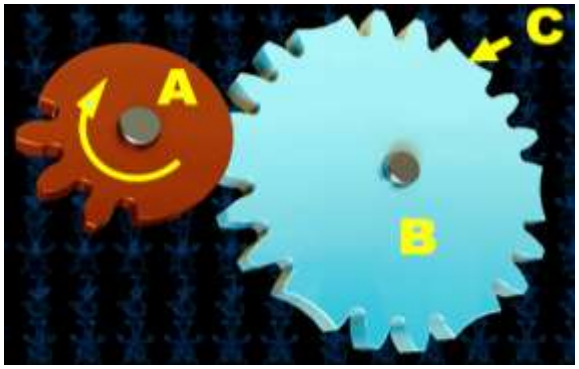
a) One.

b) Two.

c) Three.

d) Four.

22



If wheel A makes 10 complete turns, how many times will point C on wheel B come into contact with A?

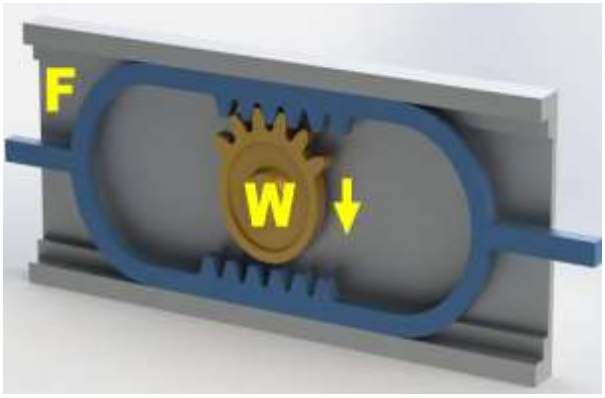
a) Once.

b) Twice.

c) Three times.

d) Ten times.

23



W is a wheel with teeth on part of its edge. F is a frame which can move sideways in its bearings. If W continuously turns clockwise, as shown by the arrow, F will move:

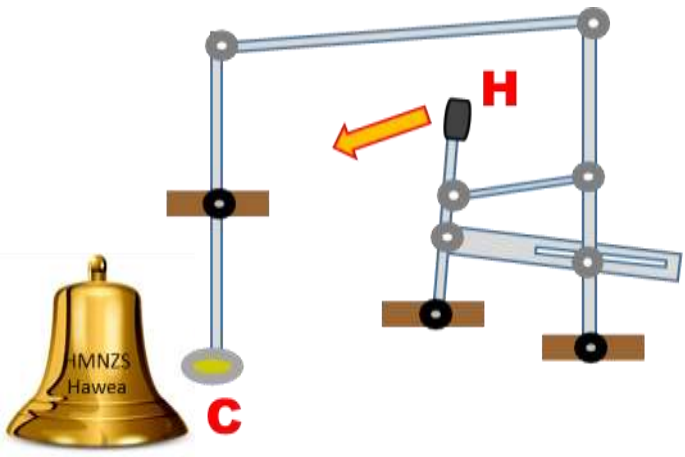
a) To the right, then stop.

b) To the left, then stop.

c) To and fro continuously.

d) To and fro with pauses.

24



If handle H is pulled to the left, as shown by the arrow, clapper C will move:

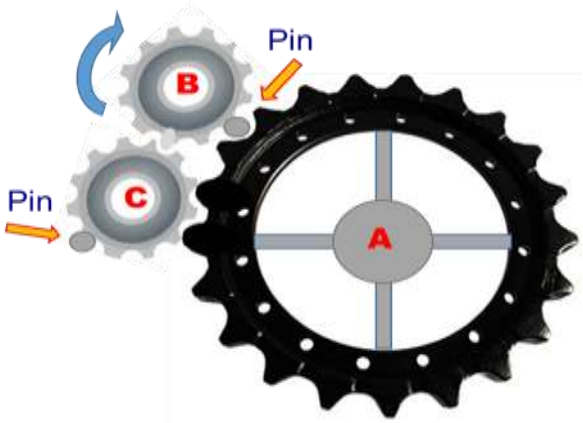
a) Left only.

b) Up only.

c) Right only.

d) Up and then right.

25



Wheel B turns and drives wheel C. B and C both have pins which fit into the slots to turn wheel A. If B continuously turns clockwise, as shown by the arrow, A will:

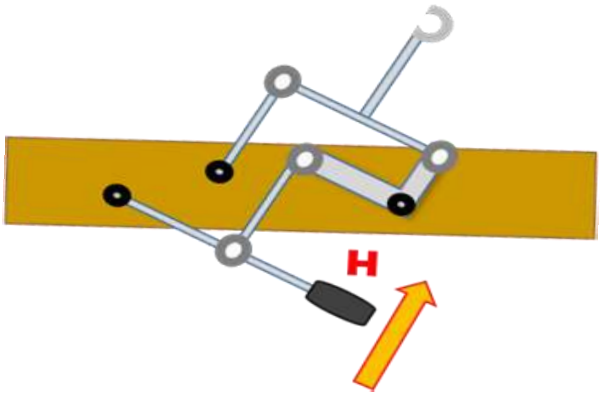
a) Turn clockwise continuously.

b) Turn anticlockwise continuously.

c) Turn to and fro.

d) Stay still.

26



If handle H is pulled up, as shown by the arrow, the claw will:

a) Move left and up.

b) Move right and up.

c) Move right and down.

d) Stay still.

27

To lower this light 20 centimetres, the weight must be moved:

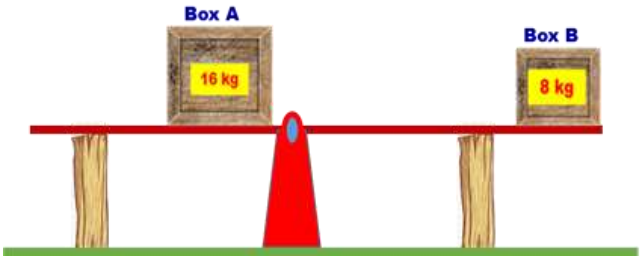
a) Up by 10 centimetres.

b) Up by 20 centimetres.

c) Down by 10 centimetres.

d) Down by 20 centimetres.

28



If the pieces of wood were removed from under the see-saw:

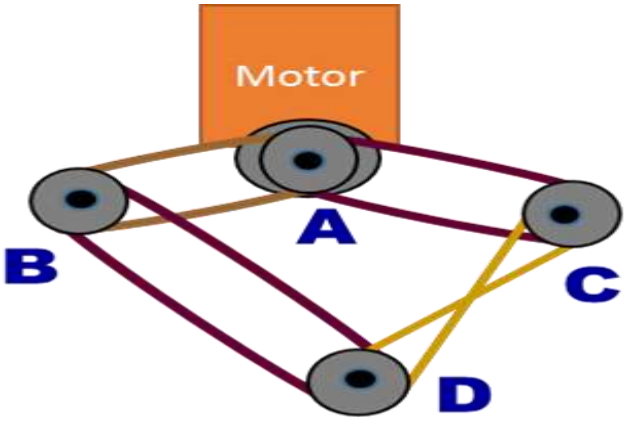
a) The see-saw left side with Box A would lower.

b) The see-saw right side with Box B would lower.

c) The see-saw would dip to and fro.

d) The see-saw would stay still.

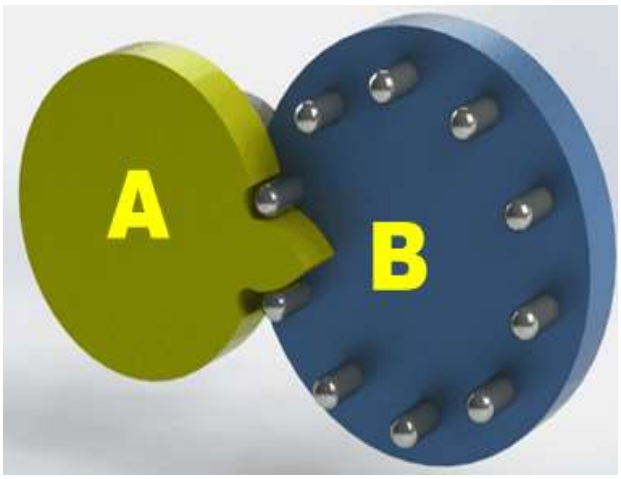
29



This mechanism, in which the motor A uses belts to drive wheels B, C and D is:

a) Workable, but only if the motor turns clockwise.
b) Workable, no matter which way the motor turns.
c) Unworkable, because wheels B and C exert opposite forces on wheel D.
d) Unworkable, because wheel D turns at a different speed to wheels B and C.

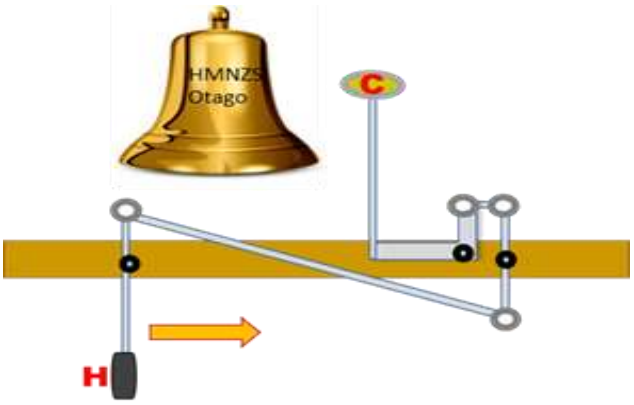
30



Wheel A sits to the left and slightly in front of wheel B. The pointer on A fits into slots in B. Which one of the following things can happen?

a) One complete turn of A will cause B to make $\frac{1}{10}$ of a turn.
b) One complete turn of A will cause B to make one complete turn.
c) One complete turn of B will cause A to make one complete turn.
d) Ten complete turns of B will cause A to make one complete turn.

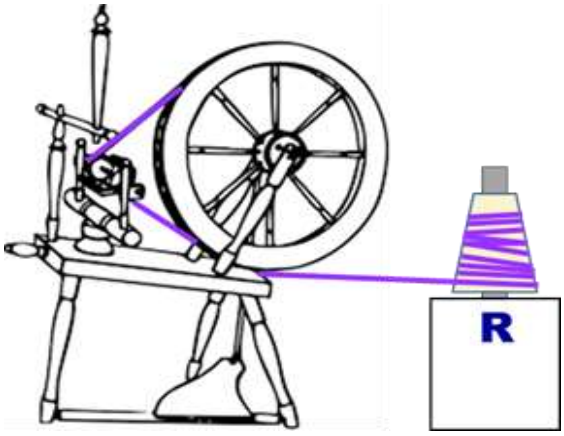
31



When handle H is pulled to the right, as shown by the arrow, clapper C will move:

a) Left only.
b) Up only.
c) Right only.
d) Up and then right.

32



If the spinning wheel is turned at an even speed so that the wool is wound from reel R, R will turn at

a) The same speed as the spinning wheel.
b) A slower speed than the spinning wheel.
c) An increasing speed.
d) A decreasing speed.