## 4. How much force will be required to lift 20 KG weight in the given diagramme?
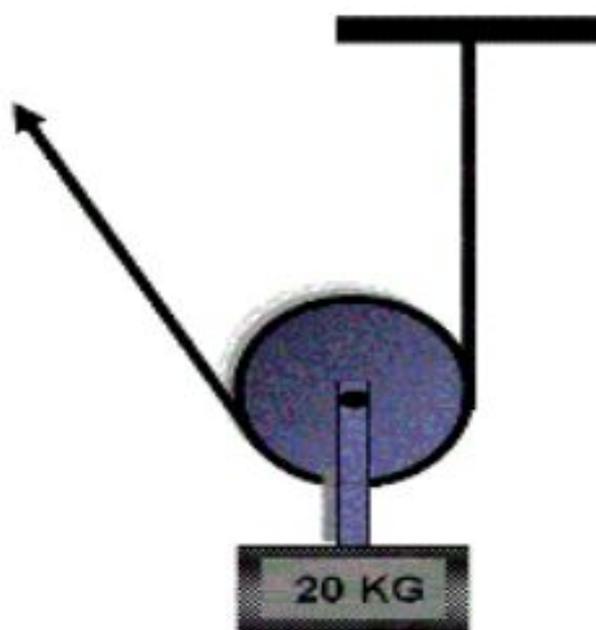

20 KG

○ a. 20 KG

○ b. 5 KG

○ **c. 10 KG**

○ d. 25 KG

5.Which tent peg will give the best hold on soft ground?
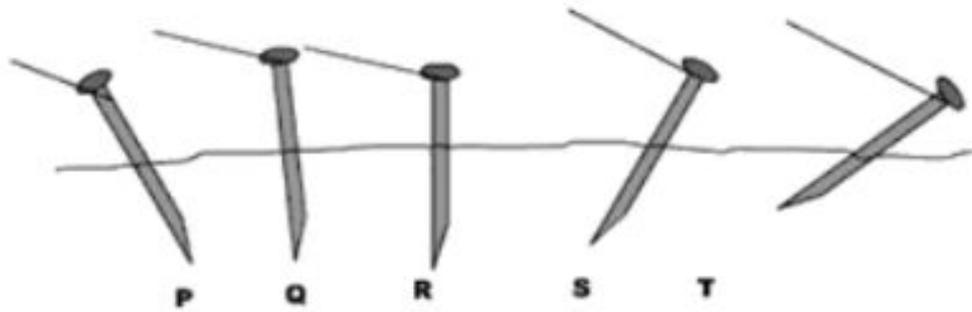
- P
- Q
- R
- S
- **T**

6.Which weight will be easiest to lift?
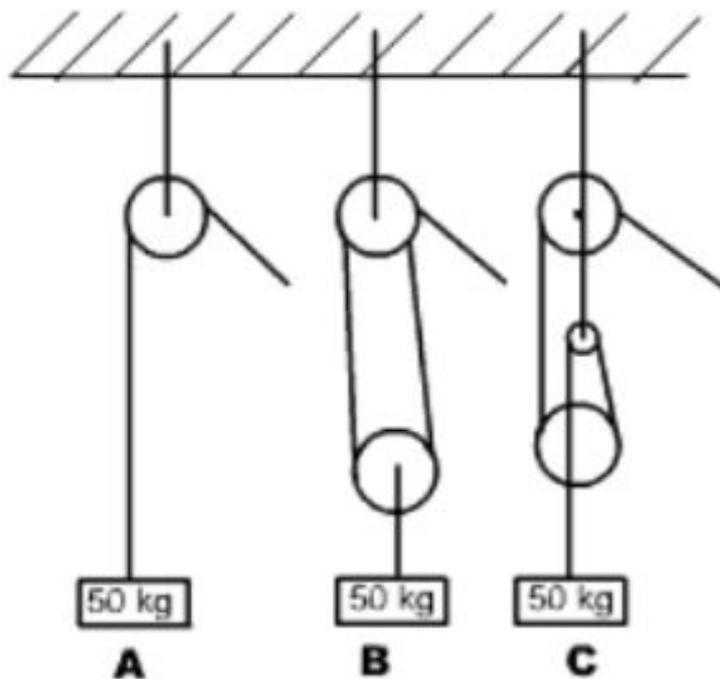
- A
- B
- **C**
- All equal

1. A force that turns an axle or a screw nut in a given direction is called?

—

○ a. (1) Torque

○ b. (2) Rotational force

○ c. (3) power

◉ **d. (4) Answer (1) and (2) are correct**

2. If you move a big load using some device (lever, pulley or gear etc) by applying little force you have achieved a.........?

○ a. Mechanical disadvantage

○ b. big task

○ c. None of these

◉ d. Mechanical advantage

3. A gear is a rotating machine part having cut teeth, or cogs, which mesh with another toothed part in order to transmit ……..?


○ a. Energy

◉ **b. Torque**

○ c. Power

○ d. Force

4. When two gears of unequal number of teeth are combined a ……….. is produced?

○ a. Change in direction of torque

○ b. Complex machine

○ c. Change in moment

⊙ **d. Mechanical advantage**

5. Geared devices can change the
……….. of a power source?
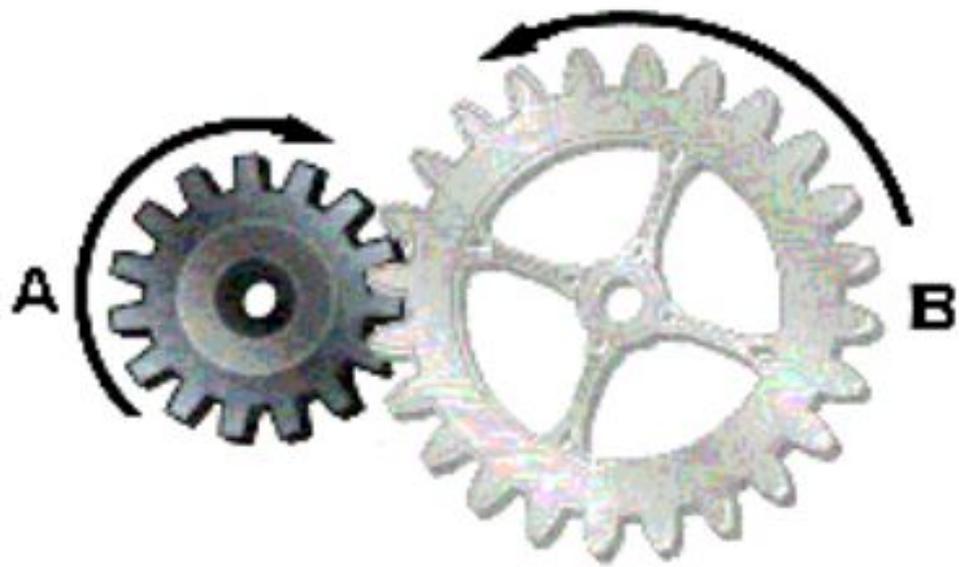
○ a. Speed

○ b. Torque

○ c. Direction

◉ **d. All of these**

6. Two or more gears meshed and working in tandem are called a ....?

A   B   C
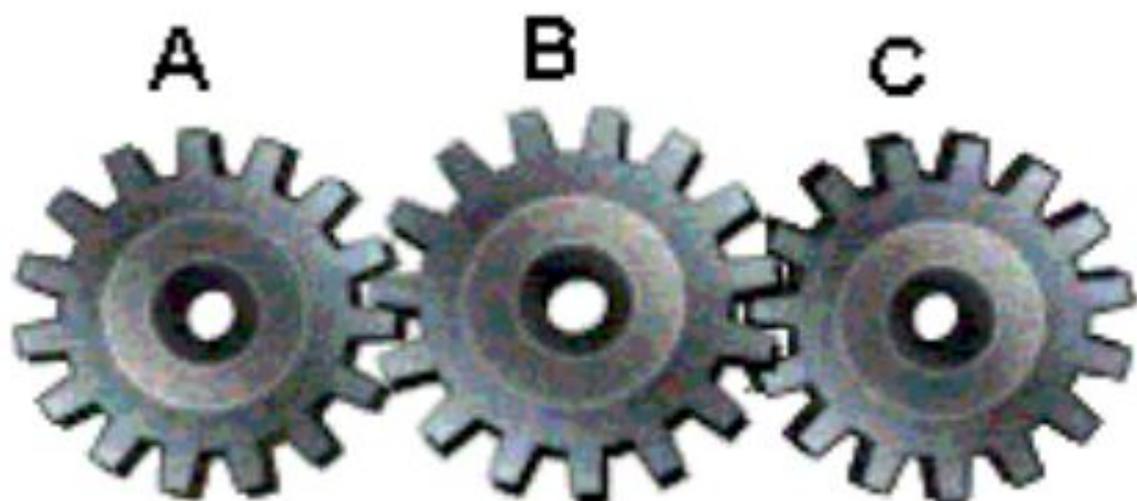
○ **a. Transmission**

○ b. Complex Machine

○ c. Pulley

○ d. Lever

1. Two or more gears working in tandem can be considered a ....?

A B C
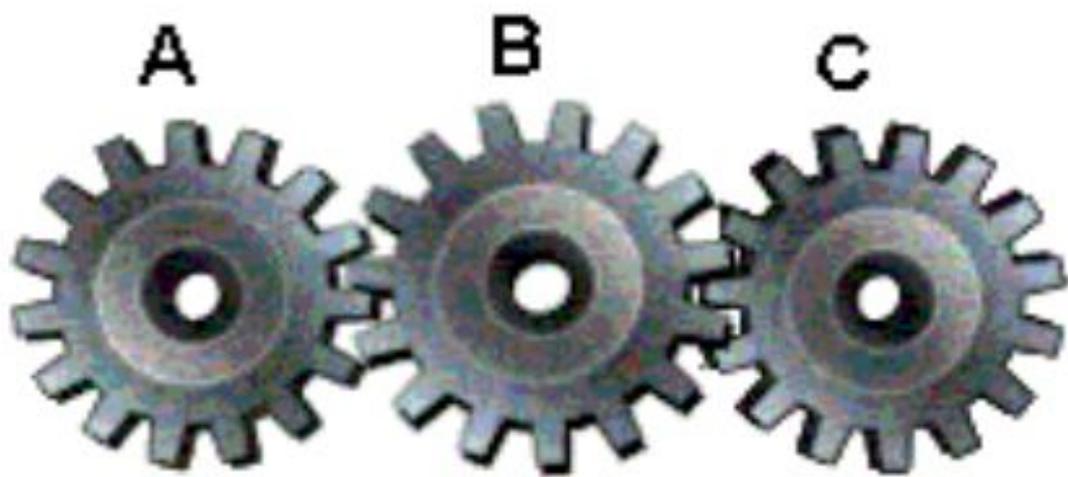
- a. Chain
- b. **Simple machine.**
- c. None of these
- d. Complex machine.

2. Two or more gears working in tandem can produce a mechanical advantage through a ....?

A

B

○ a. **Gear ratio**

○ b. Axel

○ c. Moment Arm

○ d. Pivot

3. If the force is first applied to gear "A", it will be called?
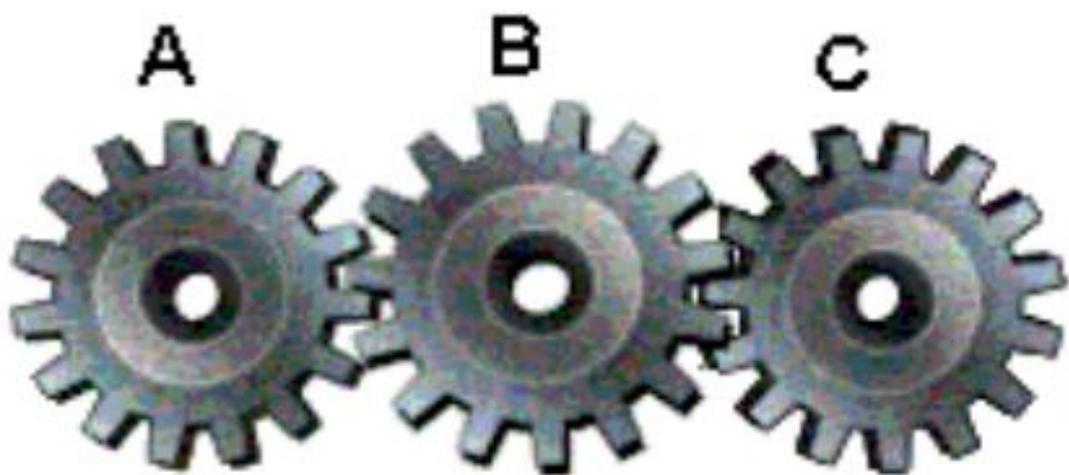
○ **a. Driver Gear**

○ b. None of these

○ c. Follower Gear

○ d. Driven Gear

4. If the force is first applied to gear "A", Gear B and C will be called?
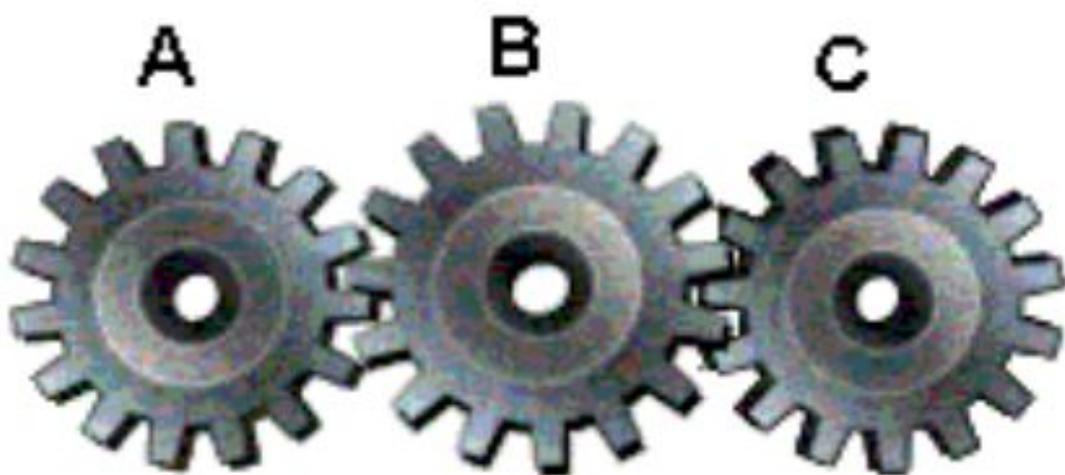

○ a. (1) Driven gears

○ b. (2) Followers

○ c. (3) Driver Gears

○ d. (4) Answer (1) and (2) are correct

5. If the driven gear has 24 teeth and the driver gear has 8, the gear ratio is?

A   B
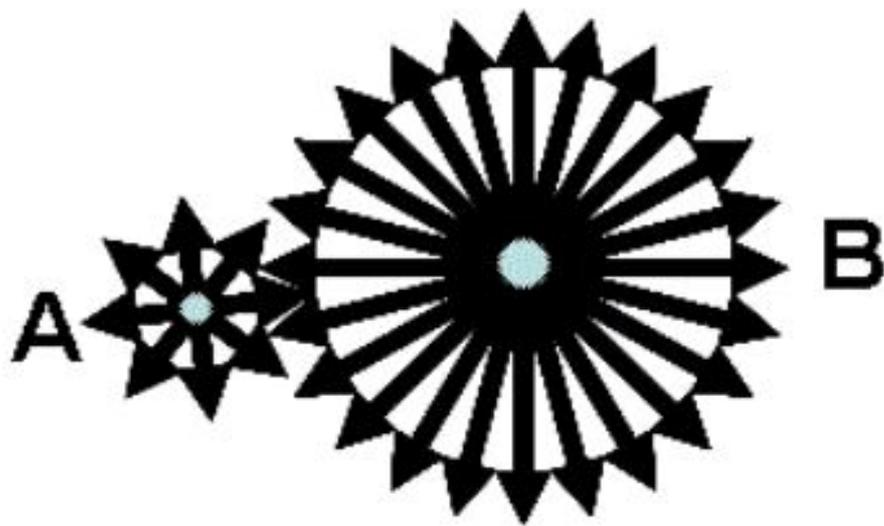
○ a. 1 to 3

○ **b. 3 to 1**

○ c. 10 to 30

○ d. 1/3 to 1

6. if the driven gear has 24 teeth and the driver gear has 8, the driver gear has to?
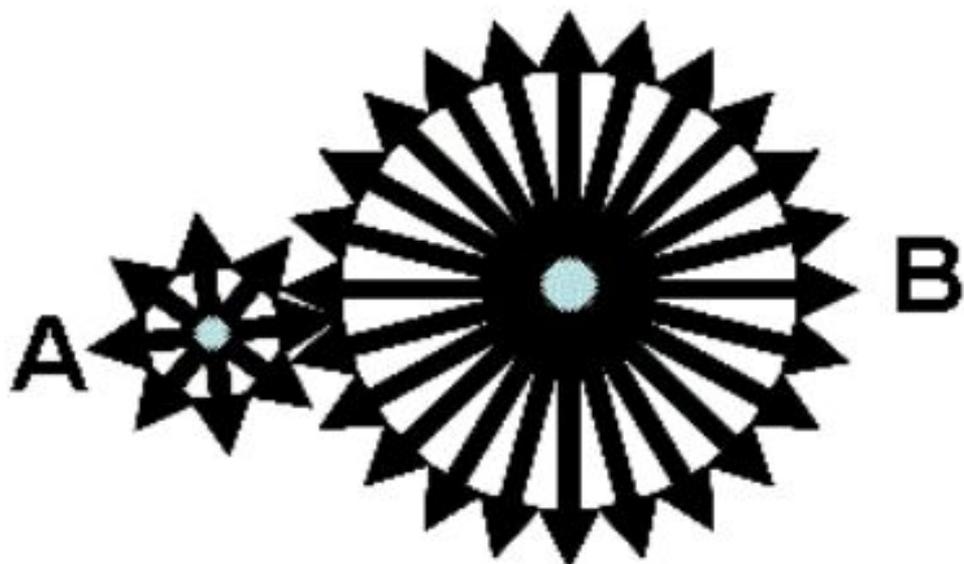
○ **a. Turn three times, to turn the driven gear once**

○ b. Turn three times, to turn the driven gear two time

○ c. Turn once, to turn the driven gear three times

○ d. Turn once, to turn the driven gear four times

1. If the wheel rotates as shown, P will
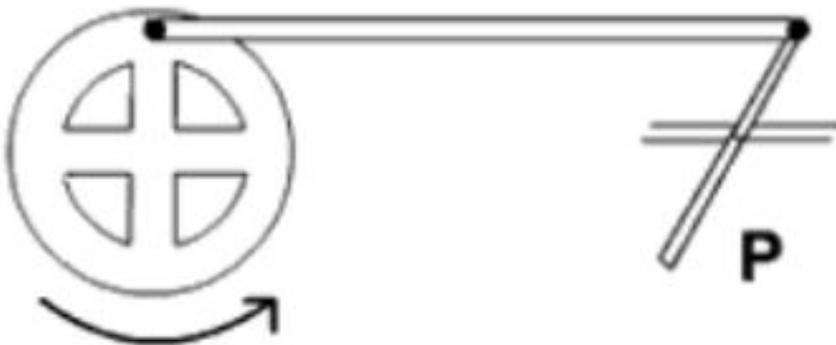
- move to the right and stop
- move to the left and stop
- **move to and fro**
- none of these

2. Which way does wheel X move?
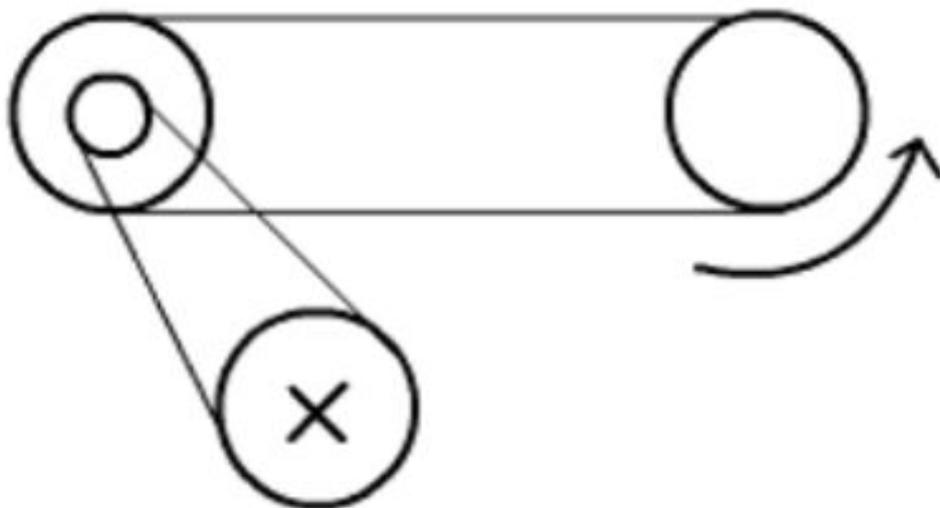
- either
- **anti-clockwise**
- clockwise
- stays still

# 3. Which nail is most likely to pull out of the wall?
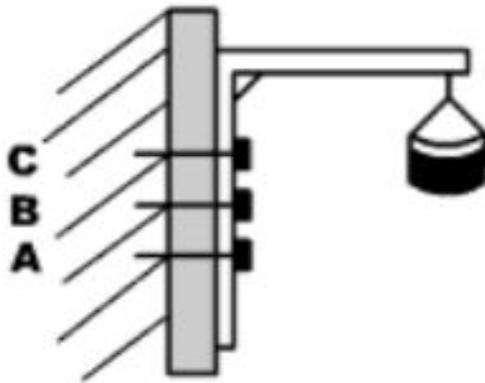
- A
- B
- **C**
- All equally likely

# 4. Which tank will cool water fastest?
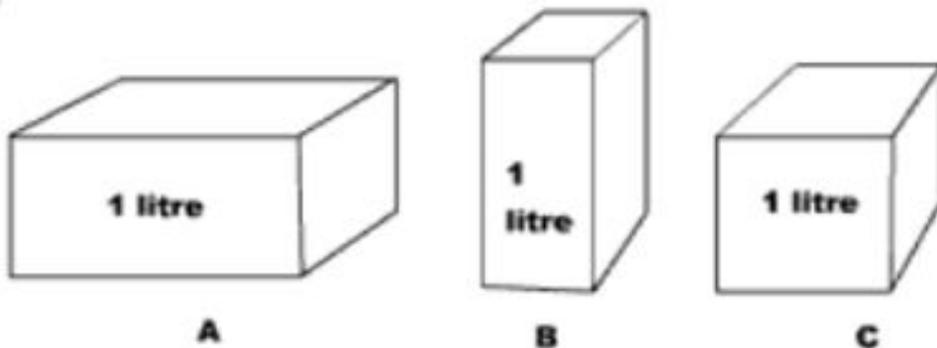
- **A**
- B
- C
- All equal

7.Which plank is most likely to break?

1 Ton

1 Ton

A

B
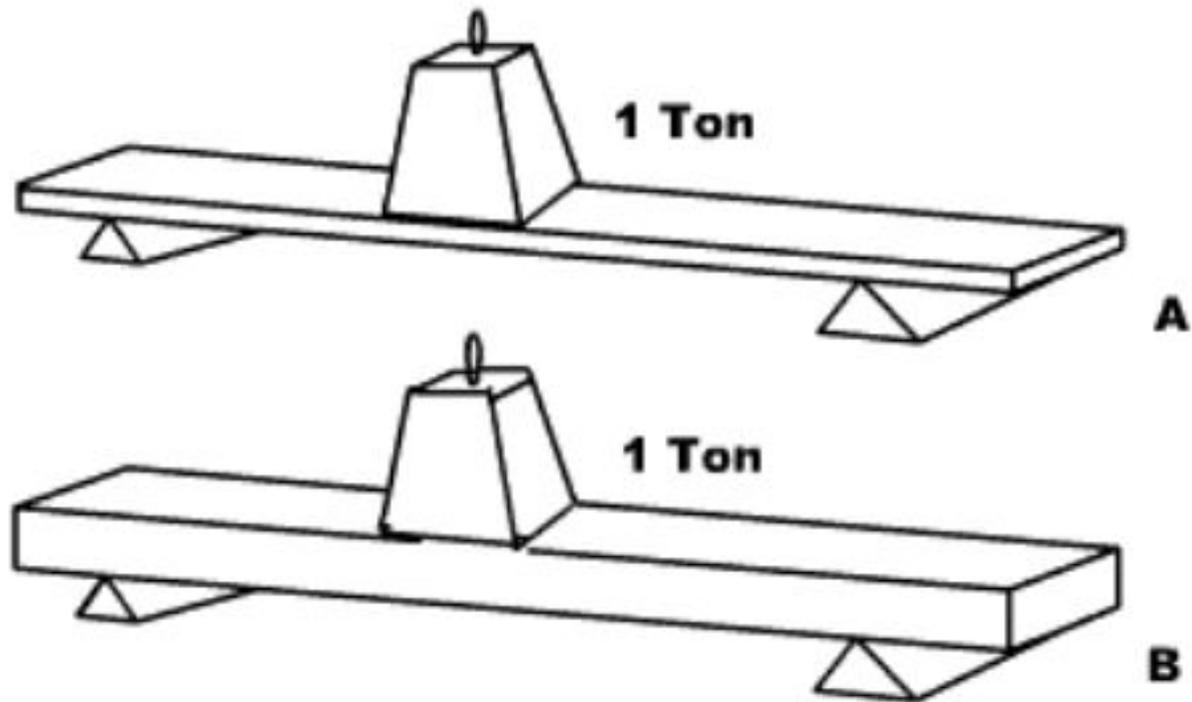
- **<u>A</u>**
- B
- Either

8.If the handle is moved as shown, how will the hooks M & N move?


Fixed Pivot

Fixed Pivot

M

N
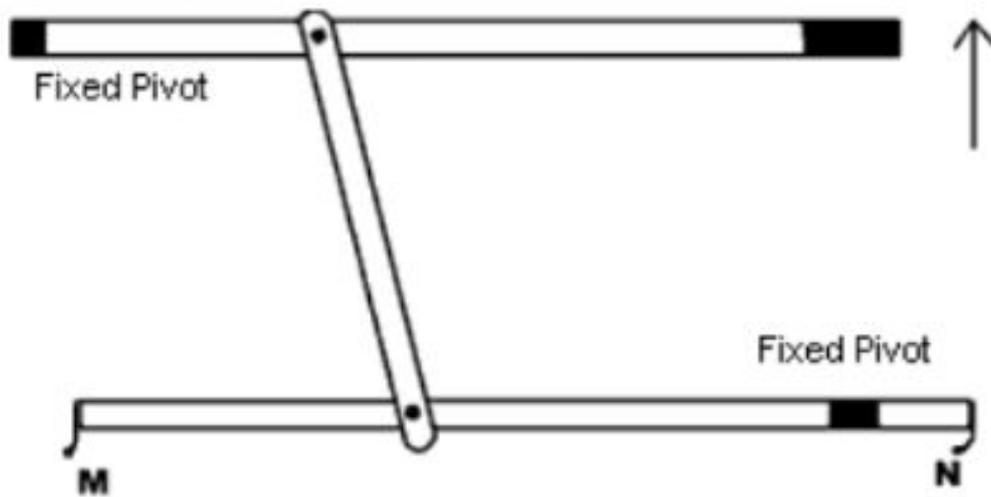
- M up, N down
- M down, N up
- M up, N up
- M down, N down
- **M up, N still**

9.The diameter of pulleys A and C is 10 cm and pulleys B and D is 5 cm. When pulley A makes a complete turn, pulley D will turn


A

B

C

D
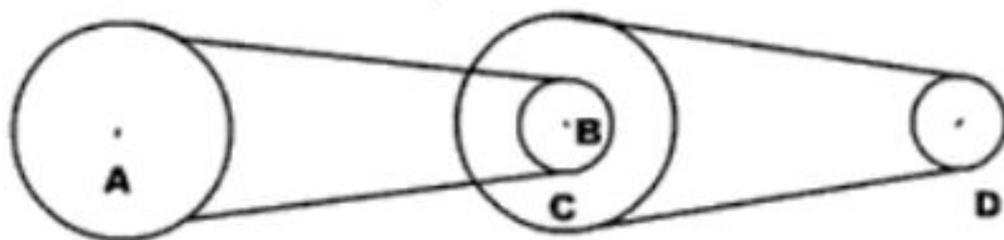
- Once
- **Twice**
- 4 Times
- 6 Times

10. If the drawing is of water pipes, which will carry most water per metre length?


A

30cm

B

10cm

C

15cm
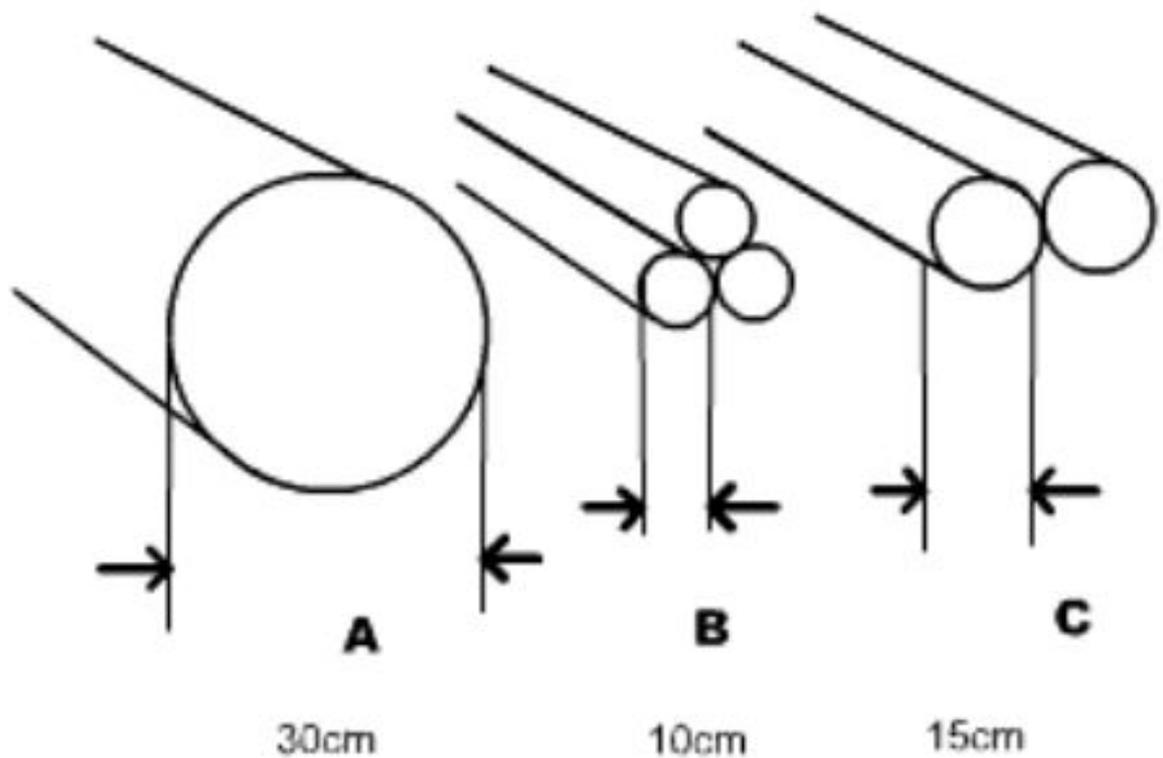
- A
- B
- C
- **All**

11. If the blocks are all of the same material, which is the heaviest?
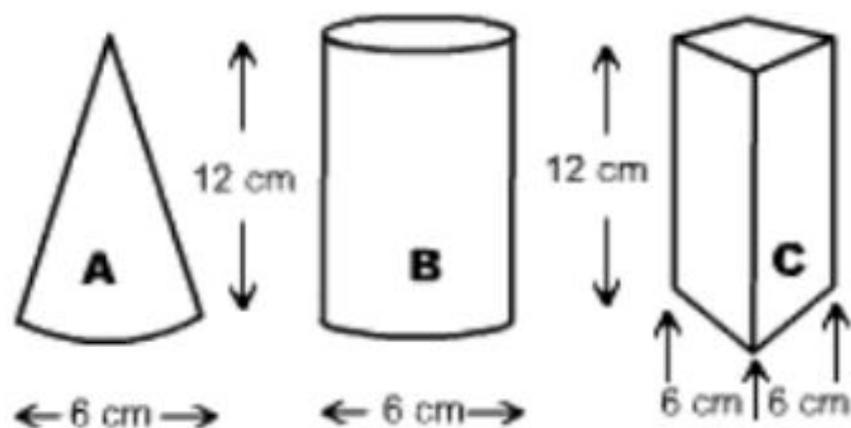

- A
- B
- **C**
- All equal

12. Which chain would support the weight by itself?
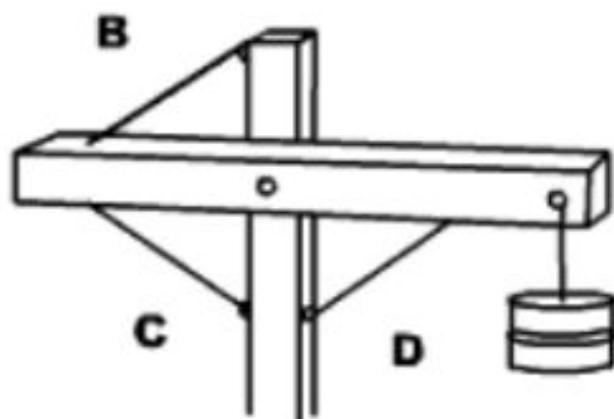
- B
- **C**
- D
- All equal

1. If the driven gear has 24 teeth and the driver gear has 8, then the driven gear?
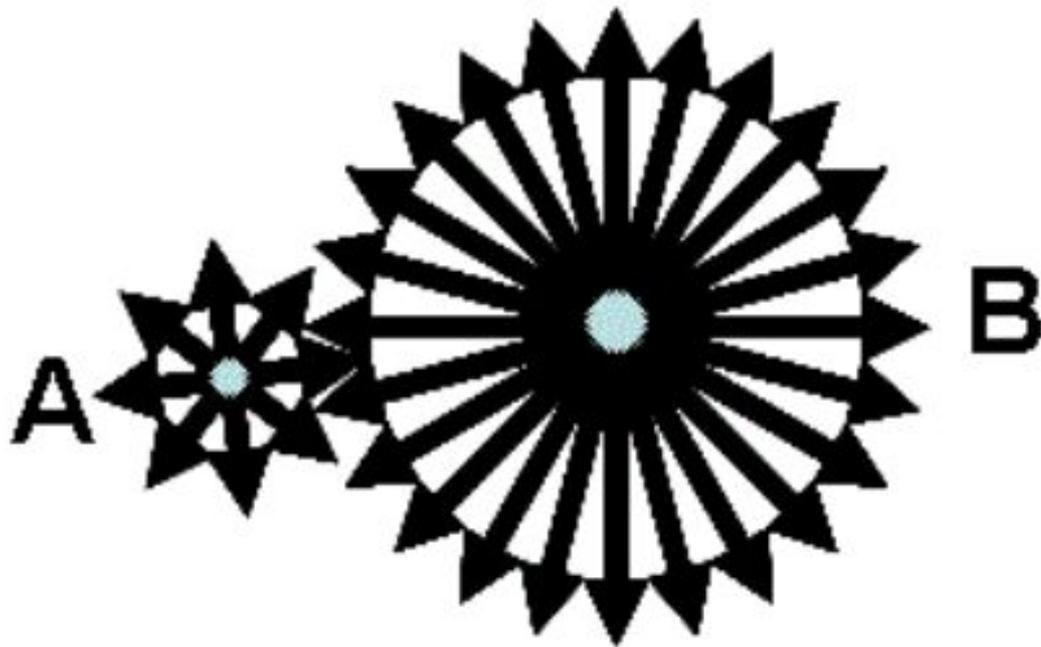
- a. Turns at same speed as of driver gear
- **b. Turns three times slower than the driver**
- c. Turns three times faster than the driver
- d. Actually driver gear moves slower

2. For gear ratio of 3 - to - 1, if input torque is 100 Newton Meters (unit of torque measurement in the SI system) then output torque is?
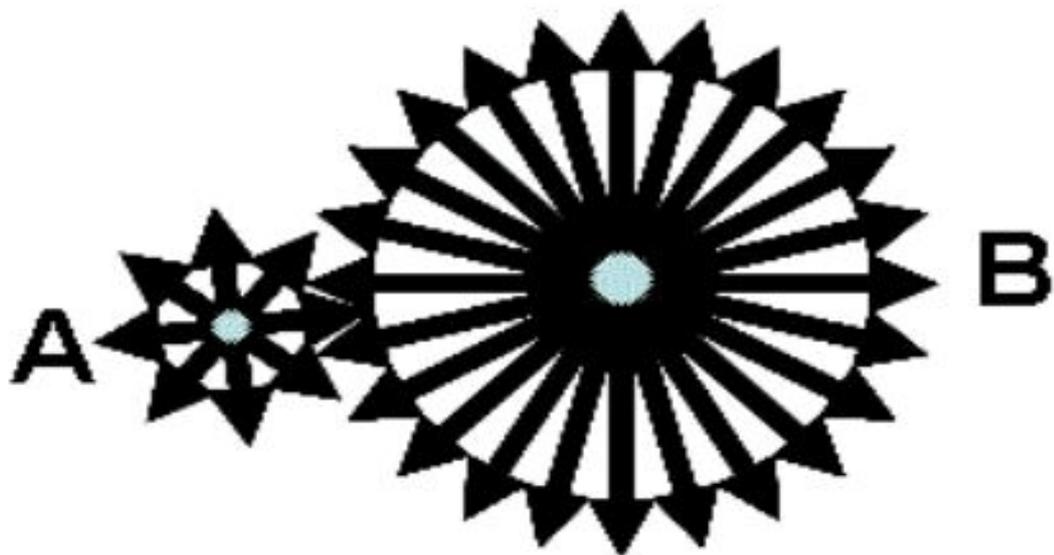
a. 1/3 times i.e. 33.33 Newton Meters.

b. 3 times i.e. 300 Newton Meters.

c. It has no effect on output torque.

d. Two answers are correct

3.When three gears are in mesh, the central gear (B) is called?
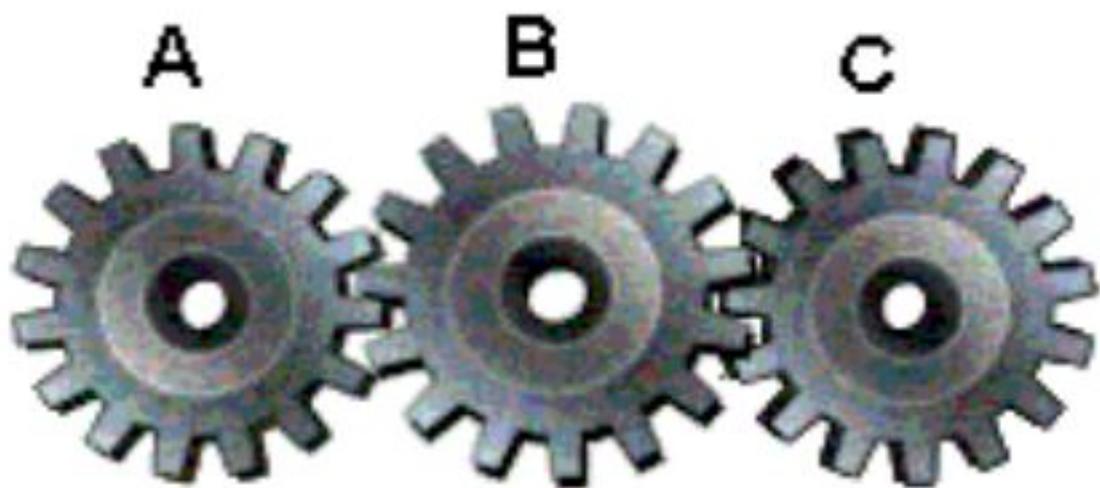
- a. Connecting gear
- b. Intermediate gear
- c. Idler gear
- d. Two answers are correct

3. The idler gear transfers' movement between the input and output gears, and?

A   B   C
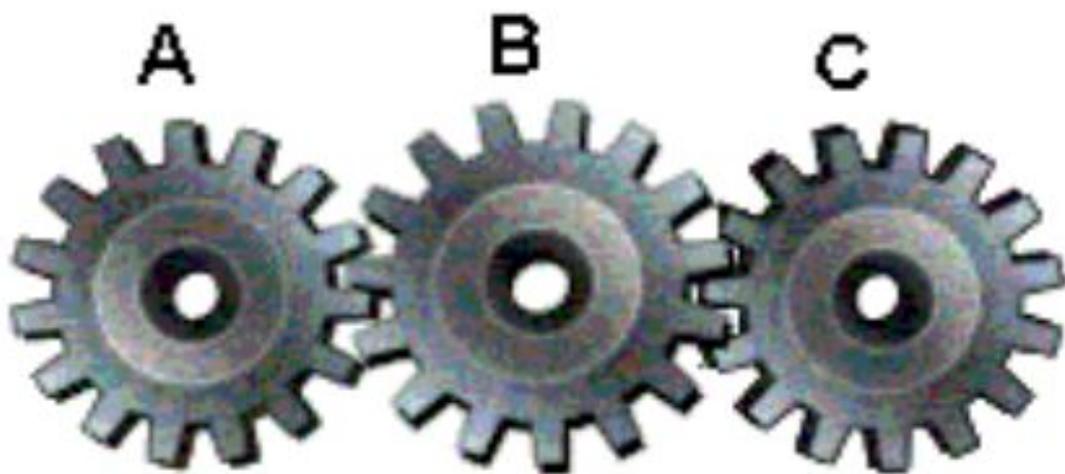
a. Has no effect on the ratio

b. Has no effect on the torque multiplication

c. Torque and ratio remain unchanged

d. All answers are correct

5. Adjacent Gears always move in?
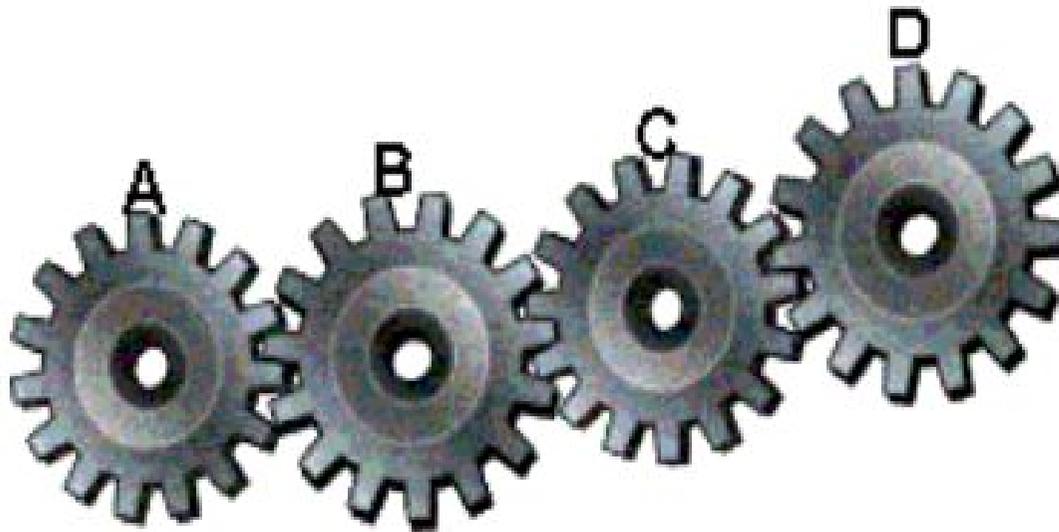
a. Clockwise direction.

b. **Opposite direction.**

c. Same direction

d. Anti clockwise direction.

1. If gears are connected by a chain or belt then they move?

   ○ **a. in the same direction.**

   ○ b. In the same and opposite direction.

   ○ c. in the opposite direction.

   ○ d. In different directions.

2. If the gears are touching (meshed) then adjacent gears move in?
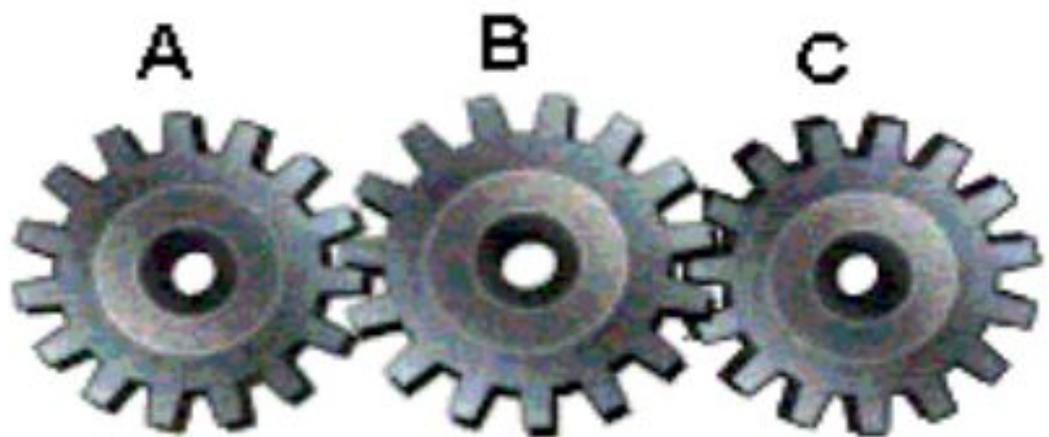
   ○ a. Same and opposite directions.

   ○ b. Same or opposite directions.

   ○ **c. Opposite directions.**

   ○ d. Same directions.

4. If the gears are touching (meshed) then the first and third gear will turn in?

A   B   C
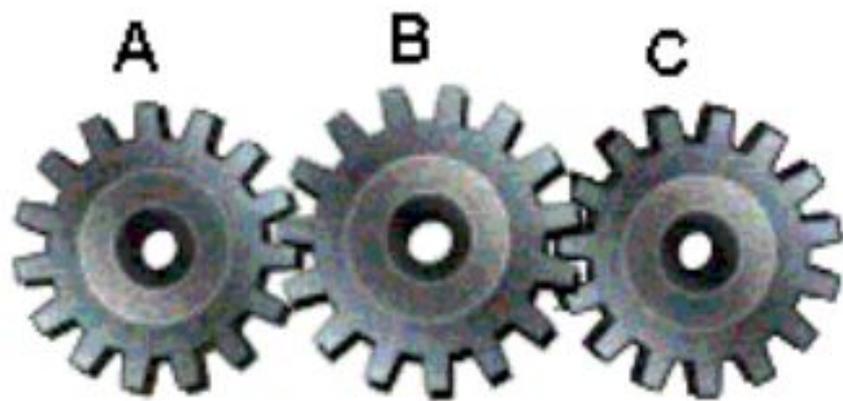
○ a. The Opposite direction.

○ b. Same or opposite directions.

○ **c. The same direction.**

○ d. Same and opposite directions.

4. In case of odd number of meshed gears the last gear will always turn in the same direction as the?

A B C D E
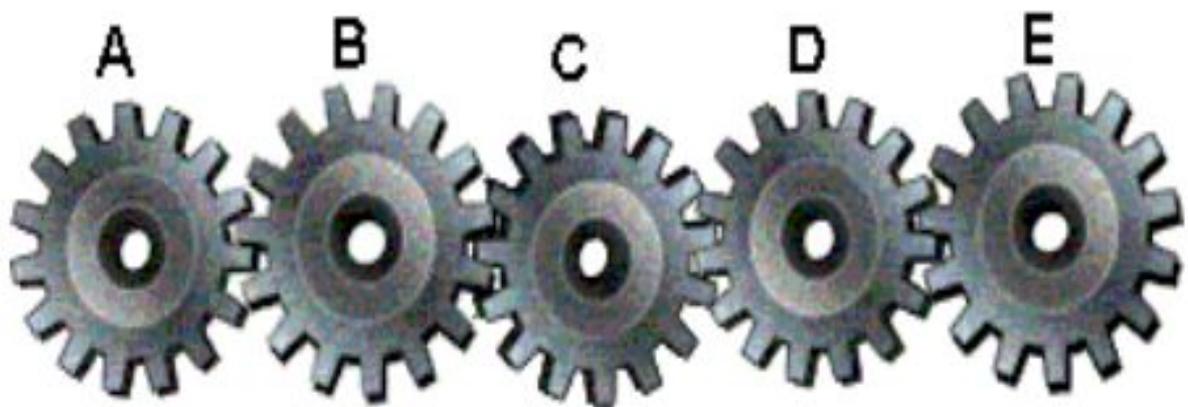
○ **a. First gear**

○ b. Second gear

○ c. Any gear

○ d. Fourth gear

5. Meshed gears with an equal number of teeth will turn at the?
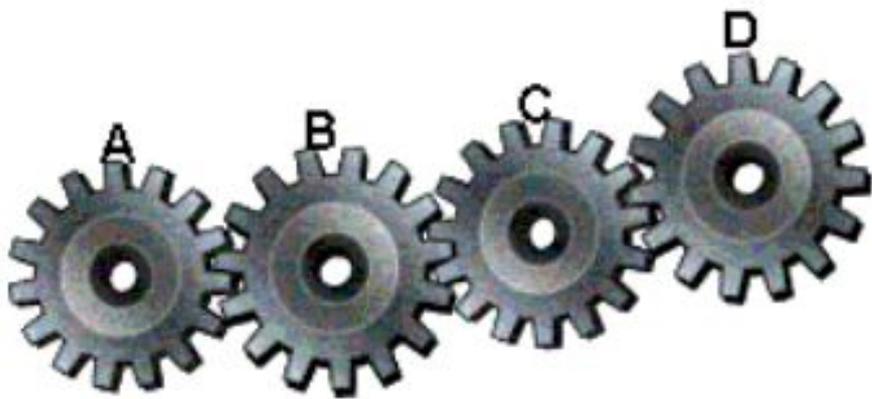
a. different speed.

b. None is correct.

c. Variable speed.

d. same speed.

1. If Meshed gears have an unequal number of teeth then the gear with the fewest teeth?

A B

○ a. will turn at equal speed.

○ b. Will turn at different speed.

○ **c. Will turn faster.**

○ d. will turn slower.

2. In meshed gears to work out how fast one is turning with respect to the other you need to...........?

A B

○ **a. Count the teeth.**

○ b. See the direction of motion.

○ c. See the size.

○ d. Note the speed of each gear.

3. Gear A turns clockwise at a constant speed of 10 rpm, how does gear B turn, if the number of teeth in each gear are equal?

A   B   C
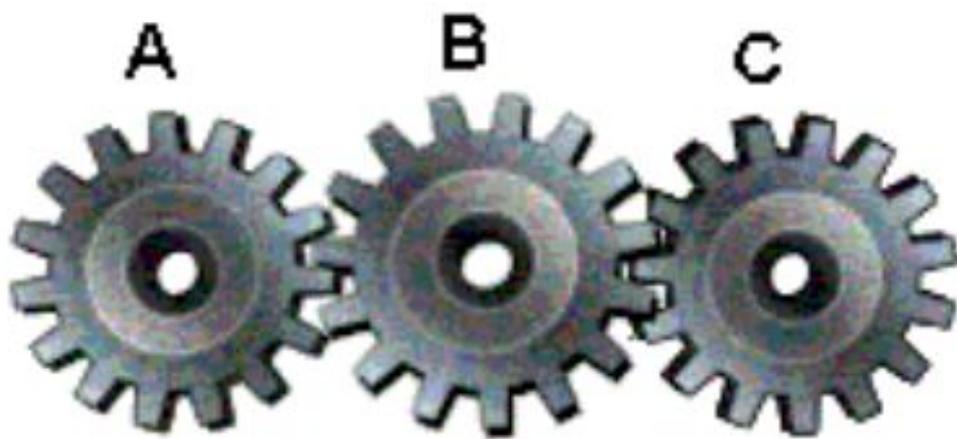
○ **a. Clockwise 10 rpm**

○ b. Clockwise 20 rpm

○ c. Anti clockwise 10 rpm

○ d. Anti clockwise 5 rpm

4. Gear A turns clockwise at a constant speed of 30 rpm, how does gear B turn, if the number of teeth in gear A are 8 and in gear B are 24?
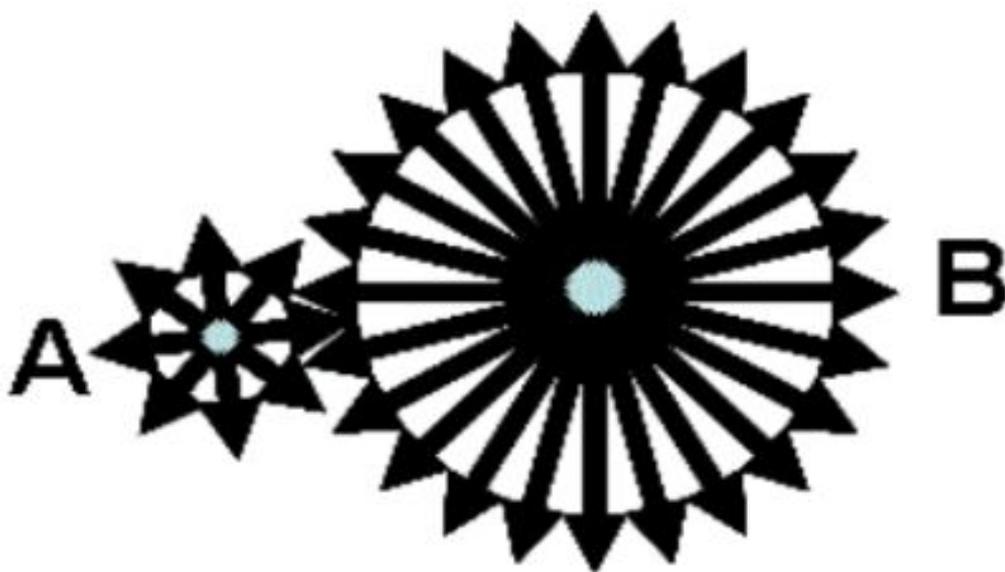
○ a. Anti clockwise 30 rpm

○ b. Clockwise 10 rpm

○ c. Clockwise 5 rpm

○ **d. Anti clockwise 10 rpm**

5. If Lower bar moves left at a constant speed, how does upper bar move?
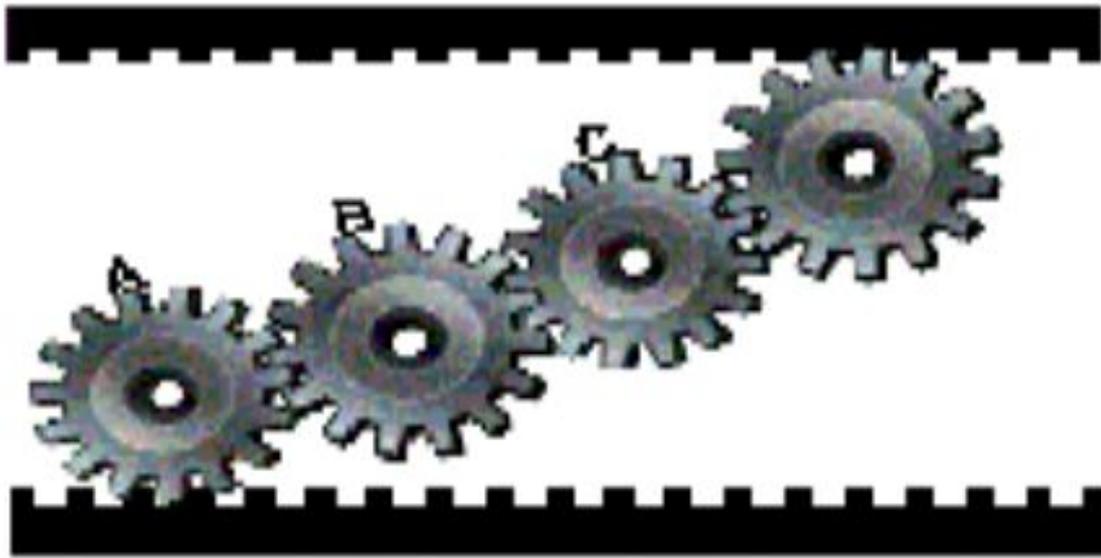
a. Left, Slower than lower bar

b. Right, at the same speed as lower bar

c. Left, Faster than lower bar

d. Left, at the same speed as lower bar

6. Gear B turns clockwise at a constant speed of 30 rpm, how does gear A turn, if the number of teeth in gear A are 8 and in gear B are 24?

a. Anti lockwise 90 rpm

b. Clockwise 30 rpm

c. Anti lockwise 60 rpm

d. Clockwise 90 rpm

5. If gears in the picture are moving then?

A   B

○   a. Both gears will be moving at the same speed.

○   <u>b. Smaller gear will be moving faster.</u>

○   c. Gear A will be moving slower.

○   d. Gear B will be moving faster.

4. Gear D will move in anti clockwise direction if?

A   B   C   D   E
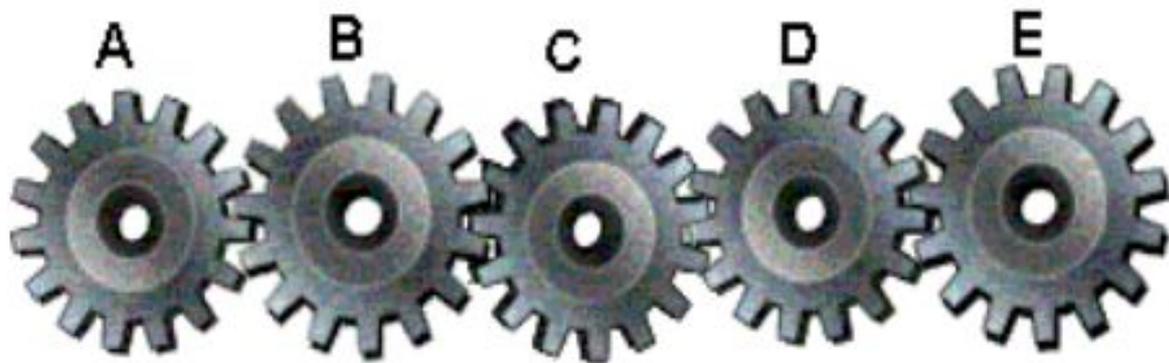
○   a. Gear C is moving in anti clockwise direction.

○   b. Gear B is moving in clockwise direction.

○   c. Gear E is moving in anti clockwise direction.

○   **d. Gear A is moving in iclockwise direction.**

3. Last gear will move clockwise if?
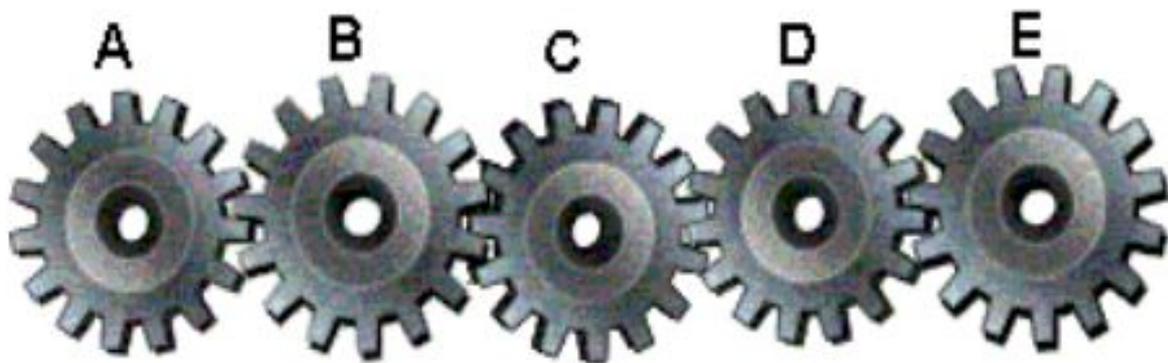
○ a. Gear D is moving in clockwise direction.

○ b. Gear B & C are moving in clockwise direction.

○ **c. Gear A is moving in clockwise direction.**

○ d. Gear B is moving in clockwise direction.

1.If drive wheel A rotates clockwise at a speed of 10 rpm, how does wheel B turn

a. clockwise slower than A

b. clockwise faster than A

c. anti clockwise slower than A

d. Anti clockwise faster than A