ASVAB-SECTION-3Q&As

ASVAB Section Three : Mechanical Comprehension

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QUESTION 1

An induction clutch works by _____.

A. magnetism

B. pneumatics

C. hydraulics

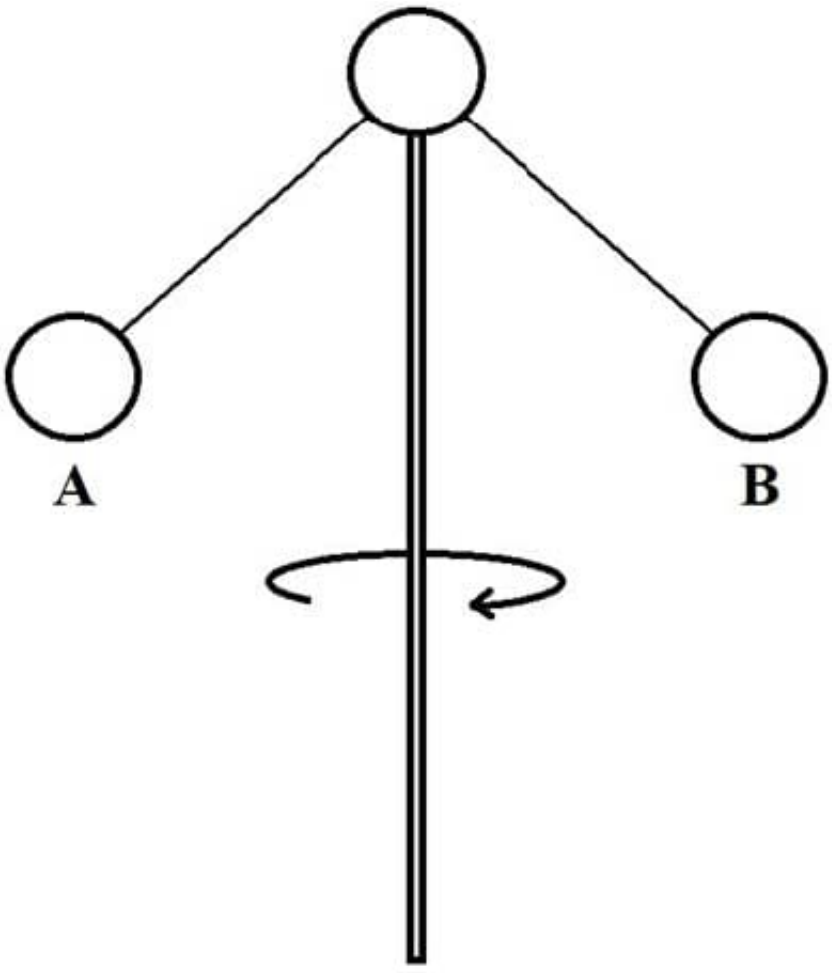
D. friction

Correct Answer: A

An induction clutch is a magnetic clutch.

QUESTION 2

As the central shaft in the illustration below spins faster in a clockwise direction, the balls labeled A and B will _____.



A. move outward and downward

B. move outward and upward

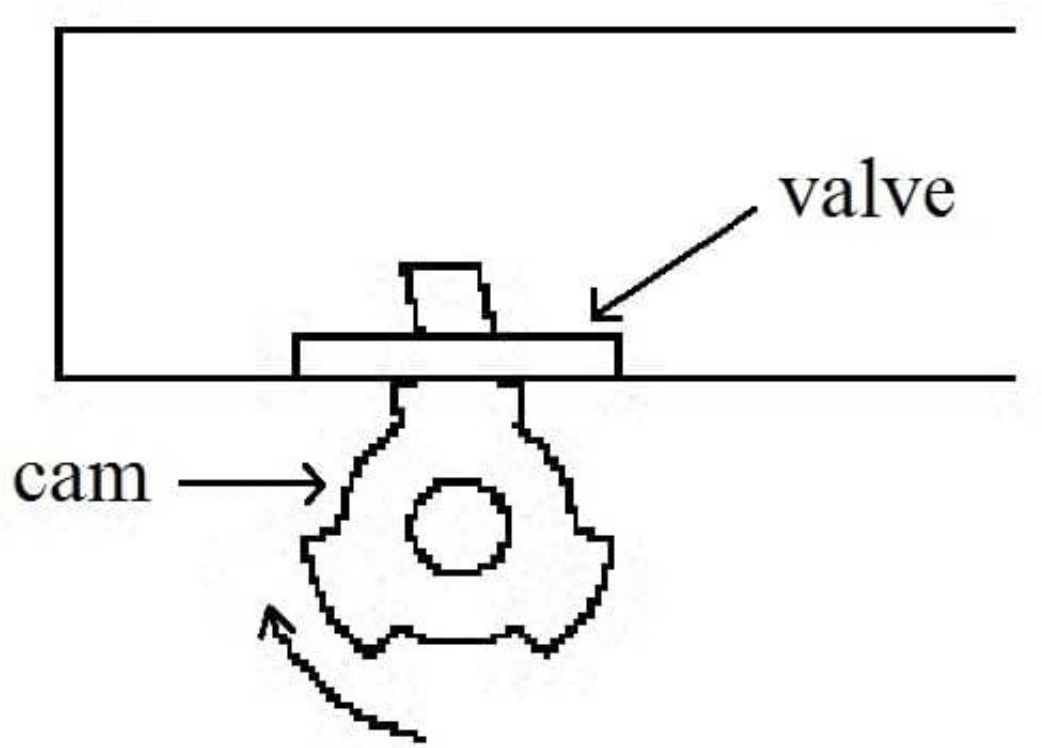
C. move up

D. move down

Correct Answer: B

Centrifugal force from the spinning shaft, regardless of direction, will cause the balls to move outward, away from the shaft; the tension on the strings holding them will result in the balls moving upward.

QUESTION 3



For the valve shown in the figure above to open once each second, the cam must revolve at a rate of _____.

A. 6 rpm

B. 10 rpm

C. 15 rpm

D. 3 rpm

Correct Answer: A

Because 60 seconds comprise a minute, the valve must open 60 times per minute. The cam will open the

valve 10 times per revolution, so 60 ÷ 10 = 6.

The cam must make 6 revolutions per minute to raise the valve 60 times per minute.

QUESTION 4

The mechanical advantage of a winch is the ratio of the radius of the crank to the radius of the _____.

A. arm

B. lever

C. fulcrum

D. shaft

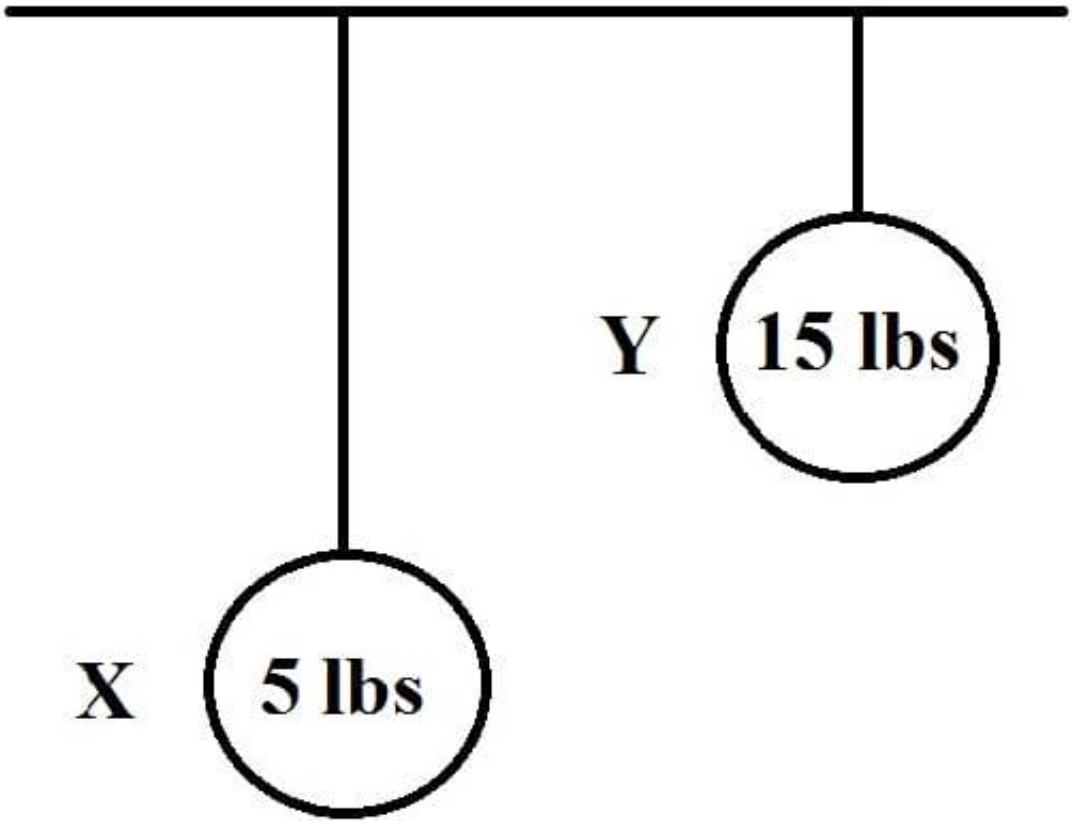
Correct Answer: D

The principle of a winch is not much different from that of a lever.

Since the crank and the shaft turn together, the torque exerted by the effort (the force on the handle) must be equal to the torque exerted by the load (the tension in the rope). The mechanical advantage then is the ratio of the radius of the crank to the radius of the shaft.

QUESTION 5

Which pendulum takes less time to make one complete back-and-forth swing?



B. Y

C. Both take the same amount of time.

D. There is not enough information to calculate the answer.

Correct Answer: B

The length of time it takes for one all back and forth swing depends on the length of the string, not the weight at the end of it.