CASED BASED QUESTION PHYSICS MOTION

Answer the question on basis of your understanding of the following paragraph and the related studied concept.

Manik was travelling by train. When the train was about to come to a pot, he saw someone jump onto the platform and hit the floor headfirst. Once the train stopped, he immediately got down and rushed to the injured person. He checked for any signs of in ternal injuries and finding none, he helped him get an auto. But one cannot jump from running trains as their door opens only when train stop.

1. The jumping man fall forward because of:

(a) Inertia of rest

(b)Inertia of motion

(c) Inertia of direction

(d) None of the above

2. The inertia of an object with greater mass is:

(a) Zero

(b) smaller

(c) greater

(d) mass is not related to inertia

3. Inertia is the resistance of an object to change its:

(a) Position of rest

(b) motion

(c) direction

(d) all of the above

4. Because of inertia, a moving object will tend to:

(a) keep moving with the same speed

(b) keep moving in the same direction

(a) only (b) only (c) (i) and (ii) (d) none

4.2. Rajat was going to a relative ' s place along with his family. On the way, he impatiently asked his father to drive faster as there weren't many cars on the way. But his father denied and stuck to the speed limit. A different car whizzed by theirs' at a very high speed and couldn't turn in time. This resulted in car hitting a tree, the driver being hurt, Rajat and his family stopped to help the driver and to calm him down. They continued on their way, after making sure that the driver was in good condition to drive himself to a nearby hospital.

1. The SI unit of velocity is:

(a) Kmh^{-1}

(b) cm/min

(c) cm/s

(d) MS^{-1}

2. What information do you expect to find from a velocity- time graph:

(a) acceleration

(b) displacement

(c) velocity at different instant of time

(d) all of the above

3. A body is thrown vertically upward which of the following is true for upward motion:

(a) velocity decrease, acceleration decrease

(b) velocity, decrease acceleration is zero

(c) velocity decrease, acceleration increase

(d) velocity decrease, acceleration is constant

4. If the displacement of a body is proportional to the square of time, then the body is in:

(a) uniform acceleration

(b) uniform velocity

(c) at rest

(d) none of the above

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4.3. When a body move in a circular path with constant speed then it is said to be in uniform motion. Some examples are:

(a) tip of minute hand in a clock

(b) tip of a fan blade revolving at its full speed

(c) motion of electron around nucleus in circular orbit

(d) motion of an artificial satellite around earth

4.4 Relative motion is the motion of an object with respect to another object. Let us take an example to understand this. Two friends A and B are sitting in a train compartment, and third friend C is standing on the platform.

Now answer the following question:

(a) define rest

(b) define motion

(c) When the train starts moving is A at rest or in motion with respect to B? Why?

(d) When the train starts moving is A at rest or in motion with respect to C? Why?

ANSWER: 4.1. 1. (b) 2. (c) 3. (d) 4. (c)

4.2. 1. (d) 2. (d) 3. (d) 4. (a)

4.3. 1. No, the direction of velocity is changing continuously.

2. No, the direction of acceleration is continuously.

3. No, the direction of force is changing continuously.

4. Zero

4.4. 1. Refer art 1.1

2. Refer art 1.1

3. A is at rest with respect to B as the position of A is not changing with respect to B.

4. A is in motion with respect to C as the position of A is changing with respect to C.

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WRITTEN BY - SHEELU YADAV

TYPIST BY - SHIVAM TIWARI