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II. Motion and Measurment

Q.0 Answer the following questions in one or two sentences.

1. What are SI units? Give examples of three SI units.

→ A common standard set units or SI unit for length, mas and time is metre(m), kilogram(kg) and second (s) respectively.

2. Give three fields where accurate measurments are important.

→ The three fields where accurate measurmen are important are scientific ~~exp~~ experimen mathematical diagrams and architectural designs.

3. How are straight lines measured?

→ We measure straight lines using a rule

4. Define motion. Name the different types of motions.

→ An object is said to be in motion when i changes its position from one place to the other with respect to another objec at rest. Different types of motions are

translational motion, rectilinear motion, curvilinear motion, rotational motion, oscillatory motion, etc.

Q.E Answer the following questions in brief.

1. What are periodic and non-periodic motion? Give three examples of each.

→ The motion of an object that is repeated at regular intervals of time is called periodic motion. The revolution of the Earth around the Sun, the movement of a pendulum of a clock and motion of tip of second hand of a clock are periodic motion. When the motion of an object is not repeated at regular intervals of time, it is called non-periodic motion. The flapping of a bird's wings, the movement of a fish's fins and motion of a bouncing ball on the floor are non-periodic motion.

2. What is the quantity used for measurment called? What were the units used in ancient time for measurment?

→ The standard quantity used for measurment is called a unit. The units used in ancient time for measurment were as follows:

1. Cubit or Hand - the length of a foream starting ~~from~~ from the elbow to the tip of middle finger.
2. Hand span - the distance between the tips of the ~~ba~~ thumb and the little finger of a strecthed palm.
3. Angul - the width of the fingers of a hand.
4. Uncia - the width of a thumb.

QF Answer the following questions in detail.

1. How is translational motion different than rotational motion? Is curvilinear motion same as rotational motion? What are different types of translational motion?

→ i) In translational motion, the object and all its parts move from one point to the other with respect to another object at rest. A fruit falling from a tree is translational motion. In rotational motion, the object rotatoes about an axis in a given interval of time. The ~~rotational motion~~, rotating blades of a ceiling fan, motion of the blades of a windmill, a spinning wheel, and a giant ferris wheel are rotational motion.

ii) Dependiding on the path followed by the ~~not~~ moving body, traslational motion is further classified as rectilinear and curvilinear.

a) The motion of an object along a straight path is called rectilinear motion. A car moving along a straight road is rectilinear motion.

b) The motion of an object along a curved path is called curvilinear motion. A ball thrown in the air and the movement of a dart to the target are curvilinear motion.

iii) In curvilinear motion, the object and its parts travel from one point to the other. In rotational motion, the object and its parts do not travel from one point to the other but only revolve around a fixed point. Curvilinear motion is not same as rotational motion.

2. Using body parts for measurment is not an accurate method. Explain this with an activity. What is the solution to this problem?

→ In earlier times, various body parts were used to measure things. For example, cubit (the length of the forearm), hand span (the length of a stretched palm of hand), angula (width of fingers), unica (the with of a thumb foot (length of a foot) were used to measure a length. However these measurments were not accurate and reliable. This can be verified with the following activity:

Take a thread and measure the length of the forearm of any classmate. This length is called cubit. Measure the cubits of different classmates and compare them. You will notice that there is variation in the length of cubits according to the body size

of different students. It indicates that the unit cubit will vary from person to person. Hence, there will be no uniformity in length measurment, and thus accuracy cannot be ~~mainted~~ maintained. The solution to this problem is the use of standard units for measurment. The international systems of units (SI) or metric system is a standard system of units used world over. In this system, the standard units of measurments for the three basic physical quantities lenght, mass, and time are metre, kilogram and second respectively.