PHYSICS

BOOKS - MTG IIT JEE FOUNDATION

MOTION AND MEASUREMENT OF DISTANCES

Illustrations

1. The height of a building is 30.5 m. Express it into cm and mm.

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2. A text book of science is made up of 300 pages, excluding the cover pages. The pages except the cover pages are each of thickness 0.005 cm. The cover pages are having a thickness of 0.05 cm each. What is the thickness of the book?

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3. Every oscillatory motion is necessarily periodic but every periodic motion need not be oscillatory. Justify.

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4. What is the nature of the distance-time graph for uniform and non-uniform motion of an object?

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5. What can you say about the motion of an object whose distance-time graph is a straight line parallel to the time axis ?

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Solved Examples

1. Convert the following as directed :

7 m into cm.

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2. Convert the following as directed :

5 cm into mm.

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3. Convert the following as directed :

8 dm into cm.

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4. Convert the following as directed :

2000 m into km.

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5. State the type of motion involved in the following:

Movement of tip of the second's hand of a clock in one minute.

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6. State the type of motion involved in the following:

Movement of a spinning top on the ground.

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7. State the type of motion involved in the following:

Motion of Moon around the Earth.

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8. State the type of motion involved in the following:

A stone thrown into the air at some angle.

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9. Convert the following as directed:

5000 g into kg.

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10. Convert the following as directed:

1000 kg into quintal

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11. Convert the following as directed:

1 hour into seconds

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12. Convert the following as directed:

2 decade into years

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13. Define the Fathom

Watch Video Solution

14. Define the Cubit

Watch Video Solution

15. Define the Handspan

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16. Classify the following quantities as fundamental and derived: mass, area, volume, time, force, length, pressure.

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17. What is the most appropriate unit for the measurement of the thickness of the coin?

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18. Why we prefer digital balance to measure mass of an object?

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19. Why we can't take arm length as the standard unit of length?

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20. Write the units of length and mass used in different system of units : MKS, CGS and FPS.

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21. Why stopwatch is used in athletics meet to measure time instead of a wrist watch?

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Ncert Section

1. Give two examples each, of modes of transport used on land, water and air.

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2. Why can a pace or a footstep not be used as a standard unit of length?

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3. Arrange the following lengths in their increasing magnitude:

1 metre, 1 centimetre, 1 kilometre, 1 millimetre.

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4. The height of a person is 1.65 m. Express it into cm and mm.

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5. The distance between Radha's home and her school is 3250 m. Express this distance into km.

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6. While measuring the length of a knitting needle, the reading of the scale at one end is 3.0 cm and at the other end is 33.1 cm. What is the length of the needle?

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7. What are the similarities and differences between the motion of a bicycle and a ceiling fan that has been switched on

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8. Why would you not like to use a measuring tape made of an elastic material like rubber to measure distance? What would be some of the problems you would meet in telling someone about a distance you measured with such a tape?

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9. Give two examples of periodic motion.

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Ncert Section Fill In The Blanks

1. One metre is _____ cm.

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2. Fill in the blank

Five kilometre is____ m

Watch Video Solution

3. Fill in the blank

Motion of a child on a swing is____

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4. Fill in the blank

Motion of the needle of a sewing machine is

_____

Watch Video Solution

5. Fill in the blanks

Motion of a wheel on a bicycle is _____ motion

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Exercise Multiple Choice Questions Level 1

1. Quantity that can be measured is called

A. physical quantity

B. unit

C. measurement

D. motion

Answer: A

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2. Choose the correct one.

A. km $>$ mm $>$ cm $>$ m

B. m $>$ mm $>$ cm $>$ km

C. km $>$ m $>$ cm $>$ mm

D. mm $>$ cm $>$ m $>$ km

Answer: C

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3. _____ is a rectilinear motion.

A. The movement of air molecules

B. The up and down movement of lift

C. Both (a) and (b)

D. Neither (a) nor (b)

Answer: B

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4. Instrument(s) used for measuring mass is/are

A. Spring balance

B. Beam balance

C. Both (a) and (b)

D. Neither (a) nor (b)

Answer: C

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5. CGS stands for

A. centimetre, gram, second

B. centilitre, gram, second

C. centimetre, gram, standard

D. only (a) and (b)

Answer: A

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6. What is the SI unit of mass ?

A. gram

B. kilogram

C. milligram

D. pound

Answer: B

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7. A person moves 100 m east, then 50 m west and finally 20 m south. How much distance he travelled?

A. 120 m

B. 170 m

C. 100 m

D. 50 m

Answer: B

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8. what is SI and CGS unit of time,mass,distance,force?

A. minute

B. second

C. hour

D. none of these

Answer: B

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9. Which of the following is the fastest mode of transport?

A. Bicycle

B. Car

C. Tonga

D. Aeroplane

Answer: D

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10. Identify the water transport.

A. Rafts

B. Sailing yacht

C. Ship

D. All of these

Answer: D

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11. A fixed quantity that is used as a standard of measurement is called

A. distance

B. unit

C. weight

D. time

Answer: B

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12. Distance between Delhi and Chennai can be measured in

A. kilometres

B. metres

C. centimetres

D. millimetres

Answer: A

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13. Identify the stationary objects.

A. Tree

B. School building

C. Earth

D. Both (a) and (b)

Answer: D

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14. Most accurate instrument used for measuring time is

A. sundial

B. water clock

C. digital clock

D. pendulum

Answer: C

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15. _____ cannot be used as the unit of length for measurement.

A. Fist

B. Foot

C. Cubit

D. Fathom

Answer: A

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16. A striker hitting a coin on a carrom board has

A. linear motion

B. periodic motion

C. circular motion

D. oscillatory motion

Answer: A

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17. Length of a curved surface can be measured by using

A. protractor

B. divider

C. thread

D. both (b) and (c)

Answer: D

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18. SI unit of distance is

A. kilometer

B. centimeter

C. meter

D. decimeter

Answer: C

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19. Rulers, metre scales and measuring tapes are used to measure

A. length

B. weight

C. mass

D. time

Answer: A

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20. The length between the great toe and end point of the heel is

A. foot

B. cubit

C. hand span

D. arm length

Answer: A

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21. An example of rotational motion is

A. bullet shot from a gun

B. clock's pendulum

C. blades of a table fan

D. both (a) and (b)

Answer: C

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22. MKS system is similar to

A. CGS system

B. FPS system

C. SI system

D. none of these

Answer: C

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23. The motion that is repeated at regular interval of time is

A. vibratory motion

B. linear motion

C. random motion

D. none of these.

Answer: D

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24. Which of the following terms means the change in position of an object with time?

A. Stationary

B. Fast

C. Slow

D. Motion

Answer: D

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25. Motion of a drawer of the table is

A. translational

B. rotational

C. periodic

D. revolutionary

Answer: A

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26. Discovery of _____ made the transport easy.

A. fire

B. stone tools

C. wheel

D. bullock cart

Answer: C

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27. Which of these is the fastest mode of transportation to travel from India to USA?

A. Land transport

B. Water transport

C. Air transport

D. All of these.

Answer: C

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28. Identify the odd one.

A. Train

B. Bus

C. Tonga

D. Car

Answer: C

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29. An object is moving in a circle of radius r. Calculate the displacement when it completes one full circle.

A. $2\pi r$

B. $4\pi r$

C. zero

D. $\pi / 2$

Answer: C

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30. The graph of distance -time graph for uniform motion for an object is

A. straight line

B. curved line

C. first straight line then curved line

D. None of these

Answer: A

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Exercise Multiple Choice Questions Level 2

1. Identify the correct one.

A. 26 kgs

B. 26 kgs

C. 26 Kg

D. 26 kg

Answer: D

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2. While measuring length using a ruler scale, the position of your eye should be

A. vertically above the 0-end

B. vertically above the point where the measurement is to be taken

C. right side of the point where the measurement is to be taken

D. anywhere according to one's convenience.

Answer: B

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3. The skill of estimation is important for

A. all of us in our daily life

B. those of us who do not know how to measure accurately

C. no one

D. a scientist while performing an experiment in the laboratory

Answer: A

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4. Milk : Volume : Vegetables : ? :: Fever: Temperature

A. Area

B. Volume

C. Length

D. Mass

Answer: D

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5. Length : Metre :: Area : ?

A. m^3

B. m

C. m^2

D. none of these

Answer: C

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6. Length : Metre :: Mass : Kilogram :: Time : Second :: ?

A. Temperature : Celsius

B. Temperature : Kelvin

C. Temperature : Fahrenheit

D. All of these.

Answer: B

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7. Assertion (A): Quartz clocks are more accurate than pendulum clocks.

Reason (R): Quartz clocks use periodic motion of simple pendulum for the measurement of time.

A. S-I and S-II are correct and S-II is the correct explanation of S-I.

B. S-I and S-II are correct but S-II is not the correct explanation of S-I.

C. S-I is correct but S-II is wrong.

D. S-I is wrong but S-II is correct.

Answer: A

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8. Which one of these uses wind energy to move from one place to another?

A. Airplane

B. Ship

C. Monorail

D. Sailing yacht

Answer: D

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9. While measuring the length of a cuboidal box, the reading at one end is 2.5 cm and the other end is 7.5 cm. The length of the box is _____

A. 7.5 cm

B. 10.0 cm

C. 5.0 cm

D. 7.5 mm

Answer: C

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10. Every measurement has ____ parts.

A. 2

B. 3

C. 5

D. 6

Answer: A

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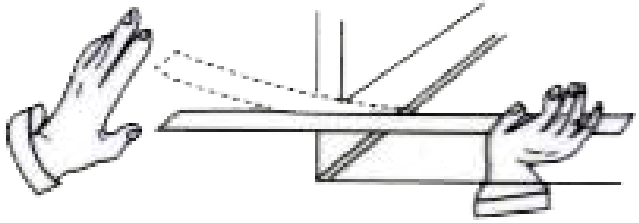
11. Which type of motion is shown in figure?



A. Rectilinear motion

B. Curvilinear motion.

C. Random motion.

D. Vibrational motion (a kind of periodic motion).

Answer: D

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12. The motion in which an object moves such that its distance from a fixed point remains the same is _____

A. translational motion

B. circular motion

C. oscillatory motion

D. random motion

Answer: B

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13. Which one of these is true about motion?

A. Motion is relative.

B. Motion is not relative.

C. Something is not in motion if its position with respect to the observer changes with time.

D. Both (a) and (c)

Answer: A

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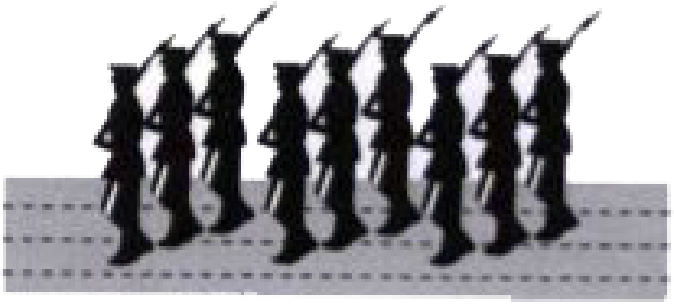
14. Observe the given figure and state which type of motion is that?



A. Random motion

B. Rectilinear motion

C. Translatory motion

D. All of these

Answer: B

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15. The movement of an object attached to a suspended spring has

A. oscillatory motion

B. circular motion

C. rotational motion

D. rectilinear motion.

Answer: A

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16. The slope of distance-time graph is curved.

It represents

A. uniform motion

B. non-uniform motion

C. both (a) and (b)

D. none of the above

Answer: B

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17. If the distance between two cities P and Q is more than the distance between another two cities R and S (the speeds of mode of transport used is same for both), then

A. time taken will be more in travelling from P to Q than from R to S

B. time taken will be more in travelling from R to S than from P to Q

C. time taken will be same in both journeys

D. data insufficient.

Answer: A

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18. Motion produced by sound waves is

A. periodic

B. non-periodic

C. circular

D. rotational

Answer: A

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19. Choose the correct option

A. Accurate measurement is necessary.

B. Estimation is necessary.

C. Both (a) and (b) depending upon the situation.

D. Neither (a) nor (b).

Answer: C

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20. On Saturday night, Prachi spent 18 minutes on social science homework, 35 minutes on mathematics homework and 22 minutes on English homework. How much time did she spend on her homework?

A. 1 h 75 min

B. 2 h 15 min

C. 2 h 75 min

D. 1 h 15 min

Answer: D

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Exercise Fill In The Blanks

1. The motion of the Earth around the Sun is _____ and the motion of the Earth on its own axis is _____ .

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2. The error in reading measurement due to the wrong position of the eye is _____ .

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3. The 'to and fro' motion or vibrations of an object about its position of rest is called _____ .

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4. Metre is the unit of _____ .

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5. The comparison of an unknown quantity with some known quantity is known as _____ .

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6. The beating of heart is _____ .

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7. Supersonic transport are the examples of _____ transport.

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Exercise True Or False

1. The length of one's wrist can be measured by using metre scale.

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2. A hand span is a reliable measure of length.

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3. Centimeter is the SI unit of measurement.

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Exercise Match The Following

1. Choices for the correct combination of elements from List-I and List-II are given as options (a), (b), (c) and (d) out of which one is correct.

List-I		List-II
(P) Movement of planets around the Sun	1.	Oscillatory motion
(Q) Motion of potters wheel	2.	Revolutionary motion
(R) Movement of a swing	3.	Rectilinear motion
(S) Movement of train along parallel tracks	4.	Rotatory motion

A. P-2, Q-3, R-4, S-1

B. P-1, Q-3, R-2, S-4

C. P-2, Q-4, R-1, S-3

D. P-2, Q-4, R-3, S-1

Answer: C

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2. Choices for the correct combination of elements from List-I and List-II are given as options (a), (b), (c) and (d) out of which one is

correct.

List-I		List-II
(P) MKS	1.	Pound
(Q) Electric current	2.	Kelvin
(R) FPS	3.	Ampere
(S) Temperature	4.	Metre

A. P-1, Q-2, R-3, S-4

B. P-3, 2-2, R-4, S-1

C. P-4, Q-3, R-2, S-1

D. P-4, Q-3, R-1, S-2

Answer: D

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3. Choices for the correct combination of elements from List-I and List-II are given as options (a), (b), (c) and (d) out of which one is correct.

List-I	List-II
(P) CGS	1. Streamlined shape
(Q) Volume	2. Kilogram
(R) Ship	3. Cubic metre
(S) SI	4. Gram

A. P-4, Q-3, R-1, S-2

B. P-4, Q-1, R-3, S-2

C. P-2, Q-1, R-3, S-4

D. P-2, Q-3, R-1, S-4

Answer: A

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Exercise Asertion And Reason Type

1. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : Earth exhibits rotatory motion.

Reason : It moves around an axis passing through it.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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2. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : The beating of heart is repetitive.

Reason : The beating of heart is a type of periodic motion.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

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3. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : Something that appears to be in motion in relation to one observer may appear to be at rest in relation to another observer.

Reason : Motion is relative.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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4. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : Use of cubit while measuring the length of an object gives inconsistent result.

Reason : The size of cubit varies from person to person.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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5. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : Use the 0-mark if the ends of the ruler scale are worn out.

Reason : Use of 0-mark on worn out scale does not give us accurate result.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: D

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6. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : The SI system of units is uniform.

Reason : The SI unit of length is kilometres.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of

assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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7. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : The skill of estimation is important

for all of us in our daily life.

Reason : The skill of estimation reduces our consumption of time.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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8. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : The distance between two celestial bodies is measured in the unit of light year.

Reason : One light year is defined as the total distance travelled by the light in one year.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

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9. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : Motion of a pendulum is periodic.

Reason : Motion of the bob of the pendulum repeats itself after a fixed interval of time.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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10. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : Boats and ships are able to sail through water easily.

Reason : Boats and ships have streamlined shapes that help them to cut through water easily.

A. If both assertion and reason are true and reason is the correct explanation of

assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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Exercise Comprehension Type

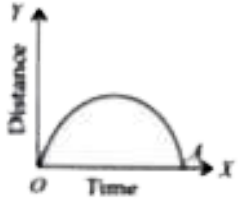
1. PASSAGE-I : A body is said to be in motion when its position changes continuously with respect to a stationary object taken as reference point. A body has a uniform motion if it travels equal distance in equal intervals of time, no matter how small these time intervals may be. The distance-time graph for uniform motion is a straight line. A body has a non-uniform motion if it travels unequal distance in equal intervals of time. The distance-time

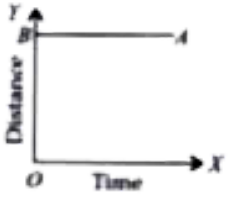
graph for a body having non-uniform motion is a curved line.

The distance-time graph for a uniform motion is

A. 

B. 

C. 

D. 

Answer: A

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2. PASSAGE-I : A body is said to be in motion when its position changes continuously with respect to a stationary object taken as reference point. A body has a uniform motion if it travels equal distance in equal intervals of

time, no matter how small these time intervals may be. The distance-time graph for uniform motion is a straight line. A body has a non-uniform motion if it travels unequal distance in equal intervals of time. The distance-time graph for a body having non-uniform motion is a curved line.

Motion of a freely falling body is an example of

A. uniform motion

B. non-uniform motion

C. circular motion

D. rotational motion.

Answer: B

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3. PASSAGE-I : A body is said to be in motion when its position changes continuously with respect to a stationary object taken as reference point. A body has a uniform motion if it travels equal distance in equal intervals of time, no matter how small these time intervals

may be. The distance-time graph for uniform motion is a straight line. A body has a non-uniform motion if it travels unequal distance in equal intervals of time. The distance-time graph for a body having non-uniform motion is a curved line.

If a body travels 2 metres in 1^{st} second, 3 metres in 2^{nd} second and then, travels with a constant speed, the motion of the body is

A. oscillatory

B. uniform

C. non-uniform

D. circular motion.

Answer: C

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4. PASSAGE-II: If the same motion occurs again and again, it is said to be repetitive motion. Repetitive motion that repeats itself at regular intervals of time is called periodic motion. A pendulum undergoes periodic motion. The time taken by a pendulum to complete its one

oscillation is known as its time period. Frequency of a pendulum is defined as the number of oscillations completed in 1 second.

The motion exerted by a swing is

A. periodic

B. non-periodic

C. rotational

D. circular

Answer: A

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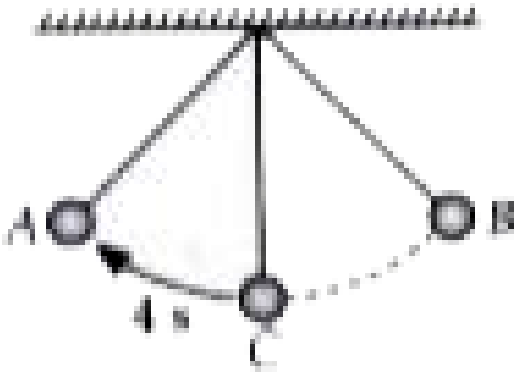
5. PASSAGE-II: If the same motion occurs again and again, it is said to be repetitive motion. Repetitive motion that repeats itself at regular intervals of time is called periodic motion. A pendulum undergoes periodic motion. The time taken by a pendulum to complete its one oscillation is known as its time period. Frequency of a pendulum is defined as the number of oscillations completed in 1 second.

If the time taken by the pendulum from C to A is 4 s, then the time taken by it to complete its

one oscillation is



A. 8 s

B. 12 s

C. 16 s

D. 4 s

Answer: C

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6. PASSAGE-II: If the same motion occurs again and again, it is said to be repetitive motion. Repetitive motion that repeats itself at regular intervals of time is called periodic motion. A pendulum undergoes periodic motion. The time taken by a pendulum to complete its one oscillation is known as its time period. Frequency of a pendulum is defined as the number of oscillations completed in 1 second. The frequency of the bob of the pendulum described in above question is

A. 0.0625 Hz

B. 0.83 Hz

C. 0.083 Hz

D. 0.625 Hz

Answer: A

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Exercise Subjective Problems Very Short Answer Type

1. What do you mean by physical quantities?

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2. Define measurement.

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3. Define standard unit.

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4. Write the names of the different types of motion with examples.

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5. How can we make accurate measurements?

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6. Define motion, What do you understand by the terms 'uniform motion' and 'non-uniform

motion' ? Explain with examples.

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7. What do you mean by one light year?

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8. Write the names of different types of motion exerted by the Earth.

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9. What is the full form of SI system?

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10. Classify the following objects in the groups of stationary objects and objects in motion : Earth, tree, flying aeroplane, electric pole and crawling ants.

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Exercise Subjective Problems Short Answer Type

1. Differentiate between revolution and rotation.

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2. Write the rules that are followed in writing the symbols of units.

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3. Distinguish between fundamental and derived units of measurement.

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4. What is the need to know the distances?

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5. Distinguish between revolutionary motion and rotatory motion.

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6. The distance between two places is 51.25 m. Convert it into km, dm, cm and mm.

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7. How can you say whether an object is in motion or in rest?

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8. What are the rules that should be followed to make the accurate measurement with scale?

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9. What is the need of units of measurement?

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10. Write the need of standard units.

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11. Illustrate with an example that a body can have different types of motion at same time.

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12. Why don't we use same SI unit for measuring the lengths of different objects or the distances between various objects?

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13. How can you say that an oscillatory motion is a periodic motion?

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14. Why is it necessary to measure at least three times and then to take the average measurement?

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15. While travelling in a train, it appears that the trees near the track are moving whereas co-passengers appear to be stationary. Explain the reason.

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Exercise Subjective Problems Long Answer Type

1. Explain translational motion along with its types.

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2. Explain any two methods that you can use to measure the length of a curved line.

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3. Explain with an example of each situation where estimation is required.

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4. Explain with an example of each situation where accurate measurement is necessary.

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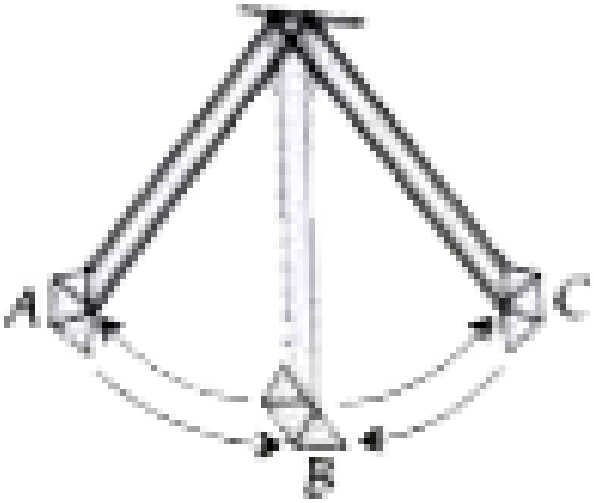
5. Study the diagram given below and answer the following question.



Name the extreme position of the swing.

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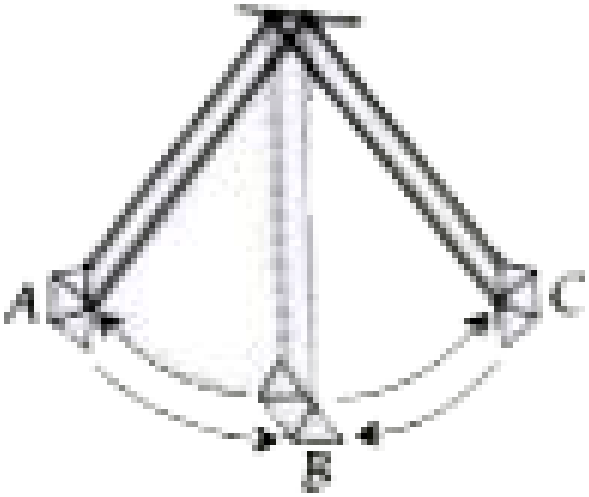
6. Study the diagram given below and answer the following question.



Which is the mean position of the swing?

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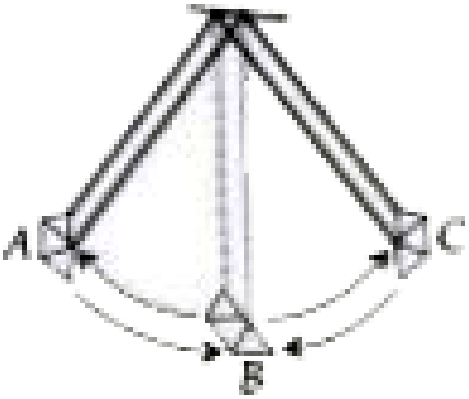
7. Study the diagram given below and answer the following question.



What kind of motion does the swing show?

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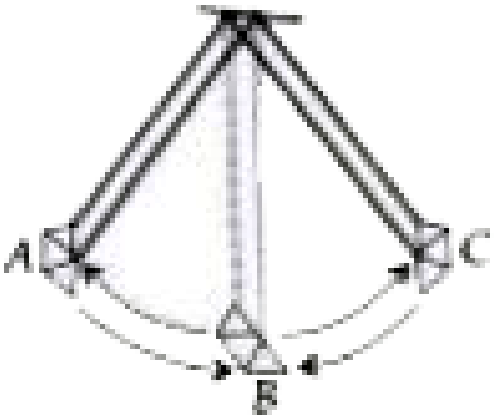
8. Study the diagram given below and answer the following question.



Does it show non-periodic motion? Give reason.

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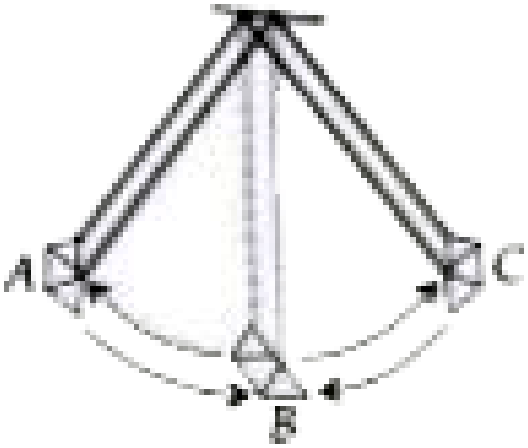
9. Study the diagram given below and answer the following question.



If the swing takes 5 s to complete 25 oscillations, then what is the time period of the swing?

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10. Find out any ten words related to this chapter from this grid.

P	M	O	T	I	O	N	X	Y	M	Z
Q	P	S	C	U	B	I	T	R	E	N
R	E	C	T	I	L	I	N	E	A	R
U	R	I	N	W	G	H	I	V	S	O
V	I	L	W	E	O	Q	M	O	U	T
W	O	L	G	I	J	R	W	L	R	A
S	D	A	O	G	P	K	N	U	E	T
T	I	T	I	H	U	N	I	T	M	I
V	C	O	D	T	W	I	N	I	E	O
C	I	R	C	U	L	A	R	O	N	N
N	B	Y	C	U	P	D	E	N	T	W

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Exercise Integer Numerical Value Type

1. In the following objects, how many objects are stationary?

Tree, earth, sun, flying aeroplane, building, moving car

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2. 8000 mg = _____ g.

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3. How many of these are the correct way of writing measurement?

9.5 cm, 6 m, 5 km., 35 s, 10 kgs.

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4. How many objects in the following undergo combined motion?

Motion of earth, wheels on a bicycle, rolling ball, table fan, sewing machine

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5. While measuring the length of a cubical box, the reading at one end is 3.5 cm and the other

end is 9.5 cm. The length of the cubical box is _____ cm.

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Olympiad Hots Corner

1. Column II has approximate values of five quantities given in column I. Match column I with column II and select the correct option

from the given codes.

	Column I	Column II
P.	Radius of the Earth	(i) 0.3 nm
Q.	Average height of a person	(ii) 1.55 m
R.	Thickness of a piece of paper	(iii) 6 Mm
S.	Distance from Delhi to Kolkata	(iv) 0.2 mm
T.	Size of a water molecule	(v) 1500 km

A. P - (v), Q - (iii), R-(i), S-(iv), T - (ii)

B. P-(i), Q-(ii), R - (iii), S-(iv), T-(v)

C. P-(iii), Q- (ii), R-(iv), S-(v), T-(i)

D. P - (iii), Q-(iv), R-(i), S - (v), T-(ii)

Answer: C

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2. Column I has different types of motion and column II has examples of motion in different order. Match column I with column II and select the correct option from the given codes.

	Column I		Column II
P.	Circular motion	(i)	A stone is dropped from a tower
Q.	Periodic motion	(ii)	A mark on blades of a rotating fan
R.	Rectilinear motion	(iii)	Motion of strings of a guitar
S.	Combined motion	(iv)	A ball is rolling on the ground

A. P-(i), Q-(ii), R-(iii), S-(iv)

B. P-(iv), Q-(iii), R-(ii), S - (i)

C. P-(ii), Q - (iii), R-(i), S. (iv)

D. P-(ii), Q - (iii), R-(iv), S - (i)

Answer: C

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3. Which of the following statements is/are correct?

I. The error in measurement of length can be caused by positioning the eye incorrectly.

II. The SI unit of length is metre and 1 m = 1000

cm.

III. The smallest length that could be measured by different devices may be different.

A. I only

B. III only

C. I and II only

D. I and III only

Answer: D

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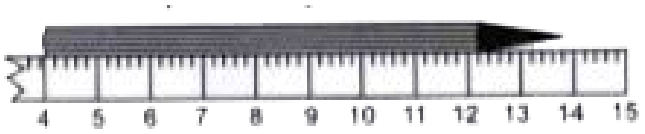
4. To measure the length of a pencil by a broken scale, one puts the pencil like this.



One end of the pencil reads 4 cm. The other end reads 13.8 cm. The length of the pencil is

A. 9.2 cm

B. 9.8 cm

C. 13.8 cm

D. 13.4 cm

Answer: B

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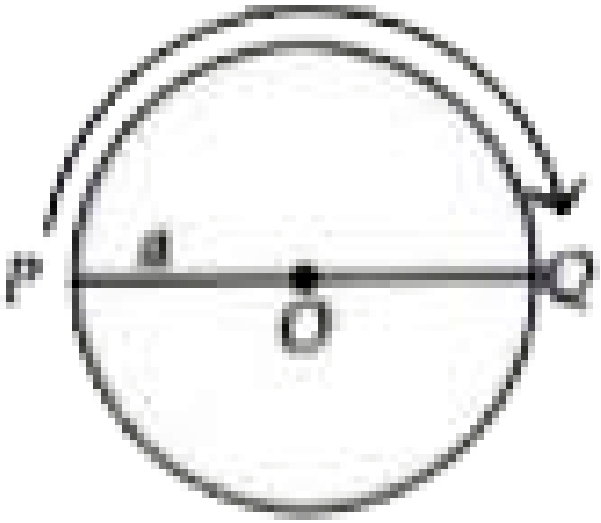
5. A boy starts running from a certain point P and goes round a circle of radius a and reaches Q, exactly at the other side of the point P as shown in figure. The distance covered by the boy would be



A. πa

B. $2\pi a$

C. 2a

D. $2\pi / a$

Answer: A

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6. Neeti is performing an activity to measure the length of her pencil using a scale.

Which of the following shows the correct position of eye for measuring the length of a pencil?

A. E

B. F

C. G

D. H

Answer: B

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7. Which of the following statements are incorrect?

(i) A bag placed below the seat of a moving bus is in motion with respect to the floor of the bus.

(ii) While measuring length of an object using a metre scale, use the zero-mark even if the ends are worn out.

(iii) Blinking of eyes is an example of periodic motion.

(iv) If a body as a whole moves around in a circular path, the motion is known as revolution.

A. (i), (ii) and (iv) only

B. (i), (ii) and (iii) only

C. (ii), (iii) and (iv) only

D. (i), (iii) and (iv) only

Answer: B

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8. Match column 1 (types of motion) with column II (example) and select the correct option from the given codes.

	Column I		Column II
P.	Rotatory	(i)	Motion of pendulum of a clock
Q.	Oscillatory	(ii)	Motion of a ceiling fan
R.	Circular	(iii)	Motion of a rocket in space
S.	Curvilinear	(iv)	Motion of the tip of minute hand of a wrist watch

A. P-(iv) Q-(i) R-(iii) S-(ii)

B. P-(i) Q-(iv) R-(iii) S-(ii)

C. P-(ii) Q-(i) R-(iv) S-(iii)

D. P-(iii) Q-(ii) R-(i) S-(iv)

Answer: C

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9. Which of the following conversions is/are incorrect?

(i) 10 decades = 1 century

(ii) 100 centuries = 1 millennium

(iii) 100 inches = 2.54 metres

(iv) 100 millimetres = 10 centimetres

A. (ii) only

B. (iv) only

C. (i) and (ii) only

D. (iii) and (iv) only

Answer: A

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10. Which of the following statements $\mathrm{is/are}$ correct?

I. The error in measurement of length can be caused by positioning the eye incorrectly.

II. The SI unit of length is metre and 1 m = 1000 cm.

III. The smallest length that could be measured by different devices may be different.

A. I only

B. III only

C. I and II only

D. I and III only

Answer: D

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11. Match column-I with column-II and select the correct option.

	Column I		Column II
P.		(i)	Rectilinear motion
Q.		(ii)	Oscillatory motion
R.		(iii)	Curvilinear motion
S.		(iv)	Rotatory motion

A. P-(iii), Q-(ii), R-(iv), S-(i)

B. P-(iii), Q-(i), R-(iv), S-(ii)

C. P-(iv), Q-(i), R-(ii), S-(iii)

D. P-(iv), Q-(ii), R-(i), S-(iii)

Answer: B

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12. Submultiple micro is equal to

A. $1/1000000$

B. $1/100000$

C. $1/10000000$

D. $1/1000$

Answer: A

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13. Which of the following unit conversions is wrong?

A. 1 km = $10^9 \mu m$

B. 1 cm = 10^3 mm

C. 1 mg = $10^3 \mu g$

D. 1 kg = 10^6 mg

Answer: B

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14. Match column I with column II and select the correct option from the given codes.

	Column I		Column II
P.	Distance	(i)	m/s
Q.	Speed	(ii)	s
R.	Volume	(iii)	m
S.	Time period	(iv)	m^3
T.	Density	(v)	kg/m^3

A. P-(i), Q-(ii), R-(iii), S-(iv), T-(v)

B. P-(iv), Q-(iii), R-(ii), S-(v), T-(i)

C. P-(iii), Q-(i), R-(iv), S-(ii), T-(v)

D. P-(iii), Q-(i), R-(ii), S-(iv), T-(v)

Answer: C

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15. Which of the following statements is false?

A. Measuring tape is not suitable to measure the girth of a tree.

B. A suitable measuring device is must to measure the length of an object.

C. In ancient India, small length measurements used were an angul or a mutthi.

D. Electric trains, monorail, supersonic aeroplanes and spacecrafts are some of the 20^{th} century contributions.

Answer: A

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