PHYSICS

BOOKS - LAKHMIR SINGH & MANJIT KAUR

MOTION AND TIME

Example

1. A man riding a scooter travels a distance of 50 metres in 20 seconds. What is the speed of

the scooter ?

A. 2.5 m/s

B. 5 m/s

C. 7.5 m/s

D. 10 m/s

Answer: A

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2. The train 'A' travelled a distance of 120 km in 3 hours whereas another train 'B' travelled a distance of 180 km in 4 hours. Which train travelled faster ?

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3. Salma takes 15 minutes from her house to reach her school on a bicycle. If the bicycle has a speed of 2 m/s, calculate the distance between her house and the school.

4. A car moves with a speed of 40 km/h for 15 minutes and then with a speed of 60 km/h for the next 15 minutes. The total distance covered by the car is:

    A. 100km

    B. 25km

    C. 15km

    D. 10km

Answer: B

5. The odometer of a car reads 57321.0 km when the clock shows the time 8.30 AM. What is the distance moved by the car if at 8.50 AM, the odometer reading has changed to 57336.0 km ?

Calculate the speed of the car in $km/\min$ during this time.

A. 45 km/hr

B. 55 km/hr

C. 30 km/hr

D. 60 km/hr

Answer: A

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6. The odometer of a car reads 57321.0 km when the clock shows the time 8.30 AM. What is the distance moved by the car if at 8.50 AM,

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Calculate the speed of the car in km/min during this time.

    A. 45 km/hr

    B. 55 km/hr

    C. 30 km/hr

    D. 60 km/hr

Answer: A

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7. Falcon is a bird which flies with a maximum speed of 320 km/h. Calculate its speed in m/s.

8. A sprinter (fast runner) attains a maximum speed of 10 m/s. What will be his speed in km/h ?

9. A simple pendulum takes 32 s to complete 20 oscillations. What is the time period of the pendulum?

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1. SI unit of speed is _____

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2. Name the unit which is used to express large speeds.

3. Name the physical quantity whose SI unit is :

(a) m/s $\quad m/s^2$

4. Which unit of speed will you use to express the speed of an aeroplane ?

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5. Name the instrument which is used :

to record the distance covered by a vehicle.

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6. Name the instrument which is used :

to record the distance covered by a vehicle.

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7. State whether the following statements are

true or false :

Every object moves with a constant speed.

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8. State whether the following statements are true or false :

Speedometer indicates the speed in km/s.

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9. What does the odometer of an automobile measure ?

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10. State whether the following statements are true or false :

The speed of a train is expressed in m/h.

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11. State whether the following statements are true or false :

Distances between two cities are measured in kilometres.

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12. State whether the following statements are true or false :

The basic unit of time is second.

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13. State whether the following statements are true or false :

The time-period of a given pendulum is not constant.

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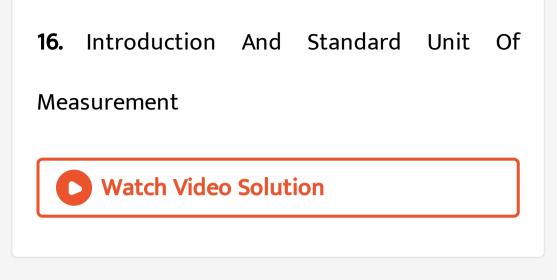
14. Name two types of graphs other than line graphs.

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15. Which physical quantity was measured by using sundial in ancient times ?

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16. Introduction And Standard Unit Of Measurement

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17. Name three units of time used in everyday life.

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18. how many seconds are there in one hour ?

19. Name two devices which were used for measuring time in ancient times before pendulum clocks were made.

20. Name the device whose periodic motion was used for making clocks till recently.

21. Name two natural units of time which were used for measuring time in olden days.

22. What name is given to the metallic ball of a simple pendulum ?

23. The motion of a simple pendulum is

24. Name the material which is used for measuring time in electronic clocks and watches.

25. Which of the following time measuring devices is most precise

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26. What is the smallest time interval which can be measured accurately :

with commonly available clocks and watches ?

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27. What is the smallest time interval which can be measured accurately :

with clocks and watches used in sports meets ?

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28. Which of the two is a bigger unit of time microsecond or nanosecond ?

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29. A pendulum clock becomes

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30. Which of the two requires an electric cell for its working : a quartz clock or a pendulum clock ?

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31. A boy riding a bicycle covers a distance of 10 m in 40 s. What is the speed of the boy ?

32. A bus takes 30 minutes to travel a distance of 25 kilometres. Calculate the speed of the bus in km/h.

33. what is speedmeter ?

34. (a) In uniform motion, the path of an object can be a straight line, curved line, zig zag line or even a circle. Why ?

(b) What does odometer of an automobile measure ?

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

36. (a) Define speed. What is the SI unit of speed ?

(b) What is meant by (i) average speed, and (ii) uniform speed ?

37. Write the dimensional formula of speed.

38. Fill in the following blanks with suitable words :

The distance moved by an object in a unit time is called ....

39. An object moving along a straight line with a constant speed is said to be in _____

40. An object moving along a straight line with a constant speed is said to be in _____

41. The distance-time graph of the motion of an object moving with a contant speed is a straight line.

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42. Fill in the following blanks with suitable words :

The time from one full moon to the next was called a ....

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43. Fill in the following blanks with suitable words :

The time from one sunrise to the next was called a ....

44. The motion of a simple pendulum is

45. Fill in the following blanks with suitable words :

One of the most well known periodic motion is that of a ....

46. The time taken by the pendulum to complete one oscillation is called_____

47. MOTION ALONG STRAIGHT LINE

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48. Classify the following as rectilinear motion (motion along a straight line), circular motion or periodic motion (oscillatory motion) :

Motion of a horse pulling a cart on a straight road.

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49. Classify the following as motion along a straight line, circular oroscillatory motion:

Motion of a child on a see-saw

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50. Classify the following as motion along a straight line, circular oroscillatory motion:

Motion of the hammer of an electric bell.

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51. Classify the following as motion along a straight line, circular oroscillatory motion:

Motion of a Bus on a straight Road.

52. Bar graph

53. What is a pie chart ?

54. What type of motion is represented by the following ?

Soldiers in a march past.

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55. What type of motion is represented by the following ?

Pedals of a moving bicycle.

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56. What type of motion is represented by the following ?

Hands of an athlete in a race.

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57. What type of motion is represented by the following ?

Bullock cart moving on a straight road.

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58. What type of motion is represented by the following ?

Spinning of earth on its axis.

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59. The distance-time graph of the motion of an object moving with a contant speed is a straight line.

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60. Draw the position-time graph of a stationary object.

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61. A train having a speed of 75 km/h takes 6 hours to travel from Delhi to Amritsar. Calculate the distance between Delhi and Amritsar.

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62. A car is running at a speed of 60 km/h. How much time will it take to cover a distance of 270 km ?

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63. An ant covers 1 metre distance in 10 seconds. What is the speed of the ant in cm/s ?

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64. A train is running at a speed of 120 kilometres per hour. Calculate the distance travelled by the train in one minute.

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65. A car travelling at a speed of 45 km/h takes 20 minutes to reach its destination. What distance has the car travelled?

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66. The distance between two stations is 480 km. A train takes 6 hours to cover this distance. Calculate the speed of the train.

67. In an experiment to measure the speed of a moving ball, it is observed that the ball covers a distance of 5 m and 20 cm in 4 seconds before it comes to a stop. Calculate the speed of the ball in m/s.

68. A train is running at a speed of 60 km/h.

Calculate the speed of train in m/s.

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69. The speed of a racing car is 60 m/s. What

will this speed be in km/h?

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70. What does the tangent at apoint to the position-time graph for an object in non-uniform motion along a straight line represent?

71. In a distance-time graph :

What type of motion does a curved line represent?

72. State the type of motion exhibited by the following :

Motion of a child in a merry-go-round.

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73. State the type of motion exhibited by the following :

Motion of the earth around the sun.

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74. The motion of a simple pendulum is

75. State the type of motion exhibited by the following :

Motion of a swing.

76. What is meant by 'uniform motion' and 'non-uniform motion' ?Give one example of uniform motion and one of non-uniform motion.

77. The distances travelled by a car at various time intervals are as follows :

Draw a distance-time graph for the car.

e distances travelled by a car at various time intervals are as					
Distance (m) :	0	5	10	15	20	25
Time (s) :	0	2	4	6	8	10
Draw a distance-time graph for the car.					

78. The distances travelled by a car at various time intervals are as follows :

What conclusion do you get from this graph about the nature of motion of the car ?

e distances travelled by a car at various time intervals are as

Distance (m) :	0	5	10	15	20	25
Time (s) :	0	2	4	6	8	10

Draw a distance-time graph for the car.

79. Draw a distance-time graph to show the motion of a car moving with a speed which is not constant (non-uniform speed).

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80. State any two advantages of drawing distance-time graphs for moving objects.

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81. What is a simple pendulum? Find an expression for the time period and frequency of a simple pendulum.

82. In an experiment to measure the time-period of a simple pendulum, the time for 20 complete oscillations was found to be 36 s. What is the time-period of this pendulum ?

83. The most appropriate unit for expressing the speed of a space rocket is :

A. m/s

B. km/s

C. km/h

D. $km/\min$

Answer: B

84. The instrument installed in a car for measuring the distance travelled by the car is called :

A. barometer

B. speedometer

C. anemometer

D. odometer

Answer: D

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85. The composition of air can be best represented by drawing a :

A. pie chart

B. bar graph

C. line graph

D. histogram

Answer: A

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86. The measurement of small time intervals became possbile with the development of :

A. sand clock

B. sundial

C. pendulum clock

D. water clock

Answer: C

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87. Which of the following could not be a unit of speed ?

    A. km/h

    B. s/m

    C. m/s

    D. mm/s

Answer: B

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88. SI unit of speed is _____

A. $km / \min$

B. $m / \min$

C. km / h

D. m / s

Answer: D

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89. The slope of a distance-time graph of a moving object indicates :

A. distance moved by the object

B. time taken by the object

C. speed of the object

D. position of the object

Answer: C

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90. Which of the following measurement is more accurate?

A. calcite crystals

B. quadric crystals

C. chrome crystals

D. quartz crystals

Answer: D

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91. Convert a speed of $36km/h$ into m/s.

A. $5m/s$

B. $10m/s$

C. $15m/s$

D. $20m/s$

Answer: B

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92. A student draws a distance-time graph fete moving scooter and finds that a section of the graph is a horizontal line parallel to the time axis. Which of the following conclusion is correct about this section of the graph?

A. the scooter has uniform speed in this section

B. the distance travelled by scooter is the maximum in this section

C. the distance travelled by the scooter is the minimum in this section

D. the distance travelled by the scooter is zero in this section

Answer: D

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93. Which of the following is the most appropriate to demonstrate the runs scored in the various ovens of a cricket match ?

A. time graph

B. bar graph

C. pie chart

D. line graph

Answer: B

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94. The clocks and watches which are used for measuring time are based on :

A. rectilinear motion

B. circular motion

C. periodic motion

D. rotational motion

Answer: C

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95. Which of the following is the most appropriate unit for expressing the speed of a snail ?

A. km/s

B. m/s

C. cm/s

D. mm/s

Answer: D

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96. The sundial is a device for measuring :

A. speed

B. distance

C. time

D. height

Answer: C

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97. When the amplitude of vibrations of a simple pendulum is increased, then its time-period :

A. decreases

B. increases

C. remains the same

D. first increases and then decreases

Answer: C

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98. The speed of a moving object is determined to be 0.06 m/s. This speed is equal to :

A. $2.16 km/h$

B. $1.08 km/h$

C. $0.216 km/h$

D. $0.0216 km/h$

Answer: C

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99. Which of the following should be drawn to show the variation of the weight of a man with age ?

A. bar graph

B. pie chart

C. line graph

D. histogram

Answer: C

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100. The distance-time graph of a car which comes to a stop after covering a certain distance will be :

A. a straight line sloping upwards

B. a curved line sloping downwards

C. a straight line parallel to time axis

D. a straight line parallel to distance axis

Answer: C

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101. Which among the following is the smallest unit of time ?

A. second

B. millenium

C. nanosecond

D. microsecond

Answer: C

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102. Out of a line graph, a pie chart and a bar

graph which one is the most suitable to show :

runs scored in various overs of a cricket match ?

103. Out of a line graph, a pie chart and a bar graph which one is the most suitable to show : variation of distance covered by a car with time ?

104. Out of a line graph, a pie chart and a bar graph which one is the most suitable to show : percentage composition of air?

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105. The distance-time graph of the motion of an object moving with a contant speed is a straight line.

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106. A car parked on road draw the shape of distance-time graph for it.

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107. Which of the following distance time graphs shows a truck moving with a speed which is not constant ?

A.

B.

C.

D.

Answer: C

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108. . The distance-time graph of an object is a straight line perpendicular to the distance-axis. What does this graph tell as about the motion of the object ?

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