1.

a. False

b. False

c. True

d. True

e. False

f. False

g. True

h. False

2.

a. at rest

b. straight line

c. 2s

d. $10ms^{-1}$

e. average speed

f. 36 kg

g. a spring balance

3.

a. Circular motion - movement of the hands of a clock

b. Periodic motion - motion of pendulum of a clock

c. Vibratory motion - motion of wire of a guitar

d. Rotatory motion - a running fan

e. Non uniform motion - a car moving in a market

(ii)If the motion of a body is along a curved path it is said to be curvilinear motion. The motion of a cycle taking turn in road, a car moving along a curved path, a ball thrown by an athelete.

7. A body is said to be in rotatory motion it moves around it fix axis with out changing the motion radius of a. The blades of afan, a spinning wheel is an example of rotatory motion.

8. The motion of a body along a circular path is called circular motion. The motion of a satelite around the Earth.

9. In rotatory motion, the axis of rotation passes from a point in the body itself whereas in circular motion, the axis of revolution passes through a point outside the body.

10. The to and fro motion of a body from its rest position is called the oscillatory motion. Exp- Oscillation of a pendulum.

11. It is also an oscillatory motion with the difference that in vibratory motion a part of the body always remains fixed and the rest part moves to and fro about its mean position. Exp-Vocal cords vibrate to product sound when we speak or sing.

12. A periodic motion gets repeated after regular intervals of time. The earth moving around the sun takes 365 days to complete one revolution and this motion gets repeated after every 365 days. where as non-periodic motion does not repeat itself after regular intervals of time. A foot baller or running on a field is an example of non-periodic motion.

13. When an object in a motion has no specific Path and which suddenly changes its motion is said to have a random motion. Exp- A flying kite

14.
(a) Rectilinear motion
(b) Rotatory motion
(c) Oscillatory motion
(d) Random motion
(e) Rotatory motion
(f) Circular motion
(g) Rotatory motion

15. Sometime a body can have more type of motion such a motion called the mixed motion.

(i) The wheels of a moving train have both translatory and rotatory motion as it moves from one position to other position while rotating.

(ii) The earth rotates about its axis which of rotatory motion and at the same time it revolves around the sun in a curved path which

is circular motion as it moves in a fixed interval of time it is also periodic motion.

16
a. Oscillatory and periodic motion
b. Translatory and rotatory motion
c. Translatory and rotatory motion
d. Translatory and oscillatory motion

17 Uniform Motion	Non Uniform Motion
• When a body covers equal distances in a straight line in equal intervals of time however small these may be, time however it is called uniform motion	- when a body covers unequal distance in equal intervals of time is called non-uniform motion.
• In this case the direction of the motion remains the same.	- In this case the direction of the motion changes.
• Ex A body moving at a constant speed in a straight line has uniform motion	• Ex A boy cycling on a busy curved road has non-uniform motion.

18. In a non-uniform motion the average speed of a body is calculated by dividing the total distance travelled by the body with the total time of journey.

Thus, average speed = $\dfrac{\text{Total distance travelled}}{\text{Total time taken}}$

19. The weight of a body is the force with which earth attracts the body. It means the weight of a body is the force of gravity on it. The weight of a body is not constant but it changes from place to place. It is representated by the symbol k. The S.I. unit is newton (N)

20. 1 kgf = 10N

1 kgf is more precisely 9.8 N

Mass	Weight
21. 1. It is the quantity of matter contained in a body.	1. It is the force with which the earth attracts the body.
2. Its S.I unit is kilogram. (kg)	2. Its S.I. unit is newton (N) and another unit is kilogram-force (kgf) where 1kgf = 10 N
3. It is constant for a body and it does not change by changing the place of the body.	3. It is not constant for a body, but changes from place to place.

22. Mass of a body doesnot change by change of place.

23. Weight is always directed vertically downwards.

Total distance travelled (D) = 30m + 30m

Total time taken = 1m + 1.5m

$= 2.5 m = 150$ sec

$\therefore$ Average speed $= \dfrac{60m}{150 sec} = 0.4 ms^{-1}$

$= 60m$

5. Distance travelled in 1st hours = 1 km

Distance travelled in 2nd hours = 0.5 km

Distance travelled in 3rd hours = 0.3 km

Total time taken = 3 hr.

Total distance travelled = 1 km + 0.5 km + 0.3 km

$= 1.8$ km

Average Speed $= \dfrac{1.8}{3} = 0.6 km h^{-1}$

(ii) Average speed in ms =

$0.6 \times \dfrac{3}{18} = \dfrac{3}{18} = 0.167 ms^{-1}$

6.

(a) Total distance travelled by the car in 1st case = speed × time

$= 30 \times 0.5 h$

$= 15 km$

distance travelled the car in 2nd case $= 40 \times 1 = 40 km$

Total distance travelled by the car
= 15 + 40 = 55 km

b. The total time of travel is 1 hour
+ 30 mins = 1 hour and 30 mins
= 1.5 hour

c. Average speed = $\dfrac{55 \text{ km}}{1.5 \text{ h}}$ = 36.67 km h^{-1}

7. Weight of a body of mass 1.0 kg is
10 N

Weight of a body of mass 37 kg
in kgf = 37 kgf

Weight of a boy of mass 37 kg
in N = 37 × 10 N = 370 N