Autumn Holiday Homework

PHYSICS

Date
Page

Multiple Choice questions.

1- Which change can occur when you add heat energy to water?

c) The water can change from a liquid to a gas.

2- What is sublimation?

c) The process by which a solid changes directly into a gas.

3- Evaporation is when

b) a substance changes from from a liquid to a gas (or vapour) naturally.

4- What are states of matter?

d) The physical forms in which a substance can exist; includes solids, liquid, gas, and plasma.

5- Force changes the

a) motion of a body b) speed of body c) shape of body

d) All of these

6. Which of the following is responsible for wearing out of bicycle tyres?

c) Frictional force

7- Force of friction depends on

a) roughness of surface b) smoothness of surface

c) inclination of surface d) All of these

8. A toy car released with the same initial speed will travel farthest on

b) polished marble surface.

9- Friction is a

b) Contact force

10. Which of the following produces least friction

b) Rolling friction

Choose the term to fill in the blanks.

11- Force has to be applied to change the direction of a moving object.

12- When an elephat drags wooden log over the land, the forces that are applied on the log are muscular force, gravitational force and frictional force.

13- A ball was set rolling on a large table. If its motion is to be changed, a force will have to be applied on it.

14- The force of friction always acts against the motion.

15. One or more forces are acting in the following examples. Name them.

a) an object falling from a tall building.

Ans: Gravitational force

b) An aeroplane flying in sky...

Ans: Mechanical force, gravitational force.

c) Squeezing sugarcane juice with a squeezer...

Ans.

d) Winnowing food grain..

Ans- Muscular force and gravitational force.

16- Convert the following quantities as indicated.

a) 10 quintal = 1 metric ton.

b) 1 cm = 0.01 metre

c) 1 mm = 0.001 metre

d) 1 yard = 3 feet

e) 1 decimetre = 0.1 metre

f) 1 decametre = 10 metre

g) 1 hectometre = 100 metre

h) 1 gram = 0.001 kg

i) 1 mg = 10^{-6} kg

j) 1 lb = 453.59 g.

k) 1 h = 3600 s

l) 1 year = 3.5×10^7 s

m) 1 day = 86400 s

n) 1 decametre^2 = 100 m^2

o) 1 hectare = 10000 m^2

p) 1 km^2 = 1000000 m^2

q) 1 dm^2 = 100 cm^2

r) 1 cm^2 = 0.0001 m^2

s) 1 mm^2 = 10^{-6} m^2

t) 1 square yard = 0.836 m^2

u) 1 square ft = 0.0929 m^2

v) 1 acre = 4046.86 m^2

17. What are the effects of friction?

Ans: Effects of ~~force~~ friction are:

i) It opposes motion.
ii) It always act in a direction opposite the direction of motion.
iii) Friction produces heat.
iv) It causes wear & tear.

18. What are the factors, affect force of friction and how?

Ans: i) The smoothness of the surface - The force of friction is more between rough surfaces and less between smooth surfaces.

ii) The nature of medium (solid, liquid or gas) in which the body moves - a solid, liquid or gas, all exert the force of friction ~~between~~ on a moving body. The friction between solid and solid is more, it is less between a solid and liquid and still less between a solid and a gas.

iii) the weight of the moving body on the surface
- greater the weight of the moving body on a surface, more is the friction on the body by the surface.

19. Define static friction, sliding friction and rolling friction.

Ans- Static friction - the maximum force exerted by a surface on a body so as long as it remains stationary is called static friction.

Sliding friction - the minimum force required to keep the body moving over a surface such that it moves equal distances in equal intervals of time.

Rolling friction - the minimum force required to roll a body on a surface.

20. What are the disadvantages of friction?

Ans i) Friction produces heat which damages the moving part of a machine.

ii) Friction causes wear and tear on the contacting surfaces. This reduces the life of machine parts.

tyres and shoe soles.

iii) a lot of energy is wasted due to friction to overcome it before moving.

21- Why does a matchstick ~~the~~ catch fire when rubbed on the rough surface of the box?

Ans- On rubbing the matchstick on the rough surface, the friction converts this work into heat. The heat rises the temperature of the chemical present on the matchstick head to its ignition temperature. Due to this the chemical substance ~~the~~ catches fire and the match stick starts burning.

22 The sole of shoes get ~~to~~ torn after some time. Explain why?

Ans- The soles of our shoes get worn out after a period of time due to the effect of friction. The soles of shoes increase the friction because it makes the surface of the shoes rough. When we walk on the road, then the friction arise.

23. Convert the following quantities as indicated

a) 12 inch = 1 ft

b) 1 ft = 30.48 cm

c) 20 cm = 0.2 m

d) 4.2 m = 420 cm

e) 0.2 km = 200 m

f) 0.2 cm = 2 mm

g) 1 yard = 0.914 m

24. Define

- Applied force → a force applied on a body can
  (i) move it if it is not in motion.
  (ii) stop it if it is moving.
  (iii) change its direction of the motion.
  (iv) change its shape or size.

- Tension → The pulling force transmitted axially by

the means of a string, a cable, or a similar object, or by each end of a rod. It can also be said as the action - reaction pair of forces acting at each end of said elements.

- Frictional force - A force which opposes the relative motion between the two surfaces that are in contact with each other.

25. Compare the properties of solids, liquids and gases.

Ans: Solids - (i) They have definite size.
(ii) They have definite shape.
(iii) They are highly dense

Liquids - (i) They don't have a definite size.
(ii) They don't have a definite shape.
(iii) They are less densed than solids.

Gases - (i) They don't have a definite size.
(ii) They don't have a definite shape.
(iii) They are less densed than solids and liquids

26. Most substances can change from one state to another under different conditions of temperature

and pressure. Explain with examples.

Ans: Most substances can change from one state to another under different conditions of temperature and pressure. For example, water, its in its liquid state in the room temperature. But it changes to solid ice when kept in a deep freezer. And when liquid water is heated it changes to water vapour.

27- Why?

a) Machines are oiled from time to time.

Ans: A machine is oiled time to time to reduce friction between its body parts and to make the machine work smoothly.

b) An object thrown upwards comed down after reaching a point.

Ans: An object thrown upwards comes down after reaching a point because of the gravitional force of the Earth. It pulls the object downwards (towards the ground).

c) Powder is sprinkled on a carrom board.

Ans: We sprinkle powder on carrom board to reduce friction between the board and the dott. So that the dots can effortlessly move on the board while playing.

28: Explain increasing and decreasing friction with suitable examples.

Ans: Increasing friction - When we suddenly put brakes of vehicle of high speed it creates a lot of friction to stop the vehicle, it means the friction is increasing.

Decreasing friction - When we pour oil in the hinges of door to make it free to open and close it means, the friction has decreased.

29- Cartilage is present in joints of our body, which helps in their smooth movement. If cartilage wears off, how would this affect the movement of joints?

Ans- Cartilage is found in our body's joints and help to minimise friction during joint movement. If this cartilage wears off, the power of friction increases, reducing fluidity of movement and causing joint pain. This increases friction, which makes movement more difficult and causes joint pain.

30- Define mass. State its (1) S.I. (2) C.G.S. and (3) F.P.S. units. How are they related?

Ans- The mass of a body is the quantity of matter contained in it.

(1) S.I. unit of mass is kilogram (kg)

(2) C.G.S. - the unit of mass is gram (g)

(3) In F.P.S - the unit of mass is pound (lb)

31- Convert the following quantities as indicated:

a) 200kg = 0.2 metric tonne

b) 150 kg = 1.5 quintals

c) 10lb = 4.536 kg

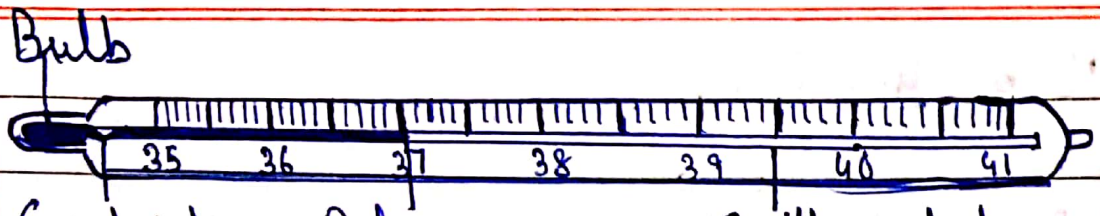
d) 250g = 0.25 kg

e) 0.01 kg = 10 g

f) 5 mg = 50^{-6} kg

32. What is a clinical thermometer? State its special feature. Draw a labelled neat diagram of ar clinical thermometre showing the range of temperature marked on it.

Ans: Doctors use a special thermometer called the clinical thermometer for measuring the temperature of the patient's body. This thermometer has the markings from 35°C to 42°C. It has a slight bend or kink in the stem just above the bulb. This kink is called the constriction. This constriction prevents the mercury from falling back all by itself. The temperature is marked by the red arrow.



Clinical thermometer.

What is the normal temperature of the human body? How is it ~~indicate~~ indicated in a clinical termometer.

Ans: ~~The~~ Normal temperature of a human body is 37°C or 98.6°F.
To measure the temperature of a patient's body, its bulb is kept either below the tongue or under the arm's pit of the patient for about a min. Then the thermometer is taken out and its reading is noted. When the temperature of the patient's body is above 37°C, he is said to suffer with fever.

33. Fill in the blanks.

a) The S.I. unit of length is metre, of time is second ~~or~~, of mass is kilogram.

b) °C is the unit of temperature.

c) 1 metre tonne = 1000 kg

d) The zero mark in celcius thermometer is the melting point of ice.

e) The thermometer used to measure the human body is called the clinical thermometer.

f) The normal temperature of human body is 37°C or 98.6°F.

34. When crystal of potassium permanganate is placed in a beaker, purple colour spreads throughout the water. What does this observation tell us about the nature of Potassium permagnate and water? Explain with an activity.

Ans. The observation shows that the purple colour spreads throughout the water is the crystal of potassium permagnate. The water is made up of many small particles. And these particles occupy space between them. Thus, when the crystal of potassium permagnate is placed in

a beaker with water, it takes the space between the water molecules and mixes with the molecules. Then these particles of potassium permagnate start to occuppy all the spaces between water molecules at make the mixture homogeneous.