

Autumn Holiday Homework

I One Mark Questions :-

Multiple Choice Questions -

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

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

② What is sublimation?

Ans- c) the process by which a solid changes directly into a gas.

③ Evaporation is when:

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

④ What are states of matter?

Ans- d) the physical forms in which a substance can exist; includes solid, liquid, gas and plasma.

⑤ Forces changes the:

Ans- All of these -

- (a) Motion of body
- (b) Speed of body
- (c) Shape of body

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

Ans- \rightarrow frictional force

⑦ force of friction depends on:

Ans- \rightarrow smoothness of surface

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

Ans- \rightarrow polished marble surface.

⑨ friction is a:

Ans- \rightarrow contact force.

(10) which of the following produces ~~less~~ least friction?

Ans- ~~a~~ 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.
(moving, direction, force)

(12) when an elephant drags a wooden log over the land, the forces that are applied on the are muscular force, mechanical 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 - gravitational force

b) An aeroplane flying in sky - Frictional force

c) Squeezing sugarcane juice with a squeezer - Muscular force

d) Winnowing foodgrain - Muscular force, Gravitational force.

16) a) 10 quintal = 1 metric ton

b) 1cm = $\frac{1}{100}$ metre

c) 1mm = $\frac{1}{1000}$ metre

d) 1 yard = 3 ft

e) 1 decimetre = $\frac{1}{10}$ metre

f) 1 decametre = 10 metre

g) 1 hectometre = 100 metre

$$h) 1 \text{ gram} = \frac{1}{1000} \text{ kg}$$

$$u) 1 \text{ square ft} = \underline{0.09290 \text{ m}^2}$$

$$i) 1 \text{ mg} = \frac{10^{-6}}{1} \text{ kg}$$

$$v) 1 \text{ acre} = \underline{4046.856 \text{ m}^2}$$

$$j) 1 \text{ lb} = \underline{453.59 \text{ g}}$$

$$k) 1 \text{ h} = \underline{3600 \text{ s}}$$

$$l) 1 \text{ year} = \underline{3.15 \times 10^7 \text{ s}}$$

$$m) 1 \text{ day} = \underline{86400 \text{ s}}$$

$$n) 1 \text{ decametre}^2 = \underline{100 \text{ m}^2}$$

$$o) 1 \text{ hectare} = \underline{10000 \text{ m}^2}$$

$$p) 1 \text{ km}^2 = \underline{10^6 \text{ m}^2}$$

$$q) 1 \text{ dm}^2 = \underline{100 \text{ cm}^2}$$

$$r) 1 \text{ cm}^2 = \underline{10^{-4} \text{ m}^2}$$

$$s) 1 \text{ mm}^2 = \underline{10^{-6} \text{ m}^2}$$

$$t) 1 \text{ square yard} = \underline{0.836 \text{ m}^2}$$

II 2 mark Questions:-

(17) what are the effects of friction?

Ans- The $\frac{1}{2}$ effects of friction -

- It opposes the motion of a body.
- It always acts in the opposite direction ~~top~~ the ~~not~~ direction of motion of a body.
- It produces heat
- It causes wear and tear.

(18) what are the factors affect force of friction and how?

Ans- The factors ^{that} affect force of friction -

- The smoothness of the surface:
~~A rough~~ Frictional force is more between rough surfaces and less between smooth surfaces.

→ The nature of medium in which an object is moving :

The friction between a solid and another solid is more, between a solid and a liquid is less and between a solid and a gas is still less.

→ weight of moving body :

more to the weight of a moving body, more is the force of friction.

less the weight of the moving body, less is the force of friction.

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

Ans- Static friction -

The maximum force required exerted by a surface on a body as long as it is stationary is called static friction.

Sliding friction -

The minimum force required to ~~make~~ keep the body moving such that it moves an equal distance in equal time interval is called sliding friction.

Rolling Friction -

The minimum force required to make an object roll is called rolling friction.

②0 what are the disadvantages of friction?

Ans- Disadvantages of friction are -

→ It opposes the motion of an object, i.e., it reduces the efficiency of the object.

→ It produces heat energy which damages the machine parts.

→ It causes wear and tear in the moving parts of a machine. This reduces the lifespan of the moving parts of a machine.

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

Ans- When a matchstick ~~catch fire~~ ^{is} rubbed on the rough surface friction is produced. As, friction produces heat energy the matchstick catches fire on being rubbed on the rough surface.

Q22) The sole of shoes get worn after some time. Explain why?

Ans - After using shoes for some time, its sole gets worn out because friction is produced when we walk, and this friction causes wear and tear.

Q24) Convert the following quantities as indicated:-

a) $12 \text{ inch} = \underline{1} \text{ ft}$

b) $1 \text{ ft} = \underline{30.48} \text{ cm}$

c) $20 \text{ cm} = \underline{0.2} \text{ m}$

d) $4.2 \text{ m} = \underline{420} \text{ cm}$

e) $0.2 \text{ km} = \underline{200} \text{ m}$

f) $0.2 \text{ cm} = \underline{2} \text{ mm}$

g) $1 \text{ yard} = \underline{0.9144} \text{ m}$

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3 mark Questions:-

Q25) Define-

a) Applied force -

To change the state of an object from rest to motion and from motion to rest a force is applied by a person or another object and this force is called the applied force.

b) Tension -

The force present in the string when a load is suspended from it is called the force of tension.

c) Frictional force -

The ~~force~~ contact force which opposes the motion of an object when it is in contact with another surface is called frictional force. It always acts in the ~~opposite~~ direction ~~of the opposite~~ to the motion direction of the motion of the body.

(26) Compare properties of solids, liquids and gases. (any 3 points)

Ans.	Solid	Liquid	Gas
	→ Its molecules are closely packed with each other.	→ Its molecules are less tightly packed than solids	→ Its molecules are far apart from each other.
	→ The intermolecular force of attraction is strongest.	→ The intermolecular force of attraction is weaker than solids	→ The intermolecular force of attraction is the weakest.

Solid	Liquid	Gas
→ The inter-molecular space is the least or negligible.	→ The inter-molecular space is is more than solids.	→ The inter-molecular space is the greatest in gases.

(27) 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. This change of state of matter of a substance by imparting heat energy to it is called interconversion of states of matter.

Ex -

When water is in its solid state (ice) if we give heat energy to it, it changes to its liquid state (water). This process is called melting ~~or~~ fusion. The melting point of water is 0°C .

When water is in its liquid state, if we impart heat energy to it, it changes into ~~solid state~~ gaseous state (water vapour). This process is called boiling or vaporization. The boiling point of water is 100°C .

(28) Why?

a) Machines are oiled from time to time.

Ans- Oil works as a lubricant to reduce friction. It is used to lubricate the machine parts so that, due to friction, its lifespan won't be reduced.

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

Ans- An object thrown upwards comes down after reaching a point because it is pulled by the gravitational force of the Earth.

c) Powder is sprinkled on a carrom board.

Ans- Friction opposes the motion of a body. So, to reduce friction we use lubricants. Talcum powder can also

be used as a lubricant. So, to reduce the friction between the carrom board and its coins powder is sprinkled on the board.

29) Explain increasing and decreasing friction with suitable examples.

Increasing friction -

→ By making surfaces rough: Sometimes sand is sprinkled on surfaces to make them rough as rough surfaces have better grip on each other.

→ By using dry surfaces: Dry surfaces have more friction. Sometimes our leg slips if the floor is wet, but on a dry floor it never slips.

→ By increasing the weight: When the body moves there is a better grip between the body and the surface when the body has more weight.

Decreasing friction -

- By making surfaces smooth: A ball rolls to a greater distance on a polished marble surface than on a wooden surface.
- By use of lubricants: To increase the lifespan of moving parts of a vehicle, lubricants like oil are used there which reduce the friction produced.
- By the use of ball bearings: The body with ball bearing covers a greater distance than the body with the flat surface.
- By streamlining: In nature the shape of a fish is streamlined so that they can easily move in water.

(30) 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 present in joints of our body works as a lubricant and thus helps in their smooth movement. It reduces the friction between the two bones. But if the cartilage wears off, the friction will increase and the joint will be completely damaged, as the friction causes wear and tear.

(31) Define mass. State its (1) SI (2) CGS and (3) FPS units. How are they related?

Ans- The amount of matter contained in an object is called mass.

(1) SI unit of mass - kilogram (symbol kg)

(2) CGS unit of mass - gram (symbol g)

(3) FPS unit of mass - pound (symbol lb)

Their relation is -

$$1 \text{ kg} = 1000 \text{ g} \quad / \quad 1 \text{ g} = \frac{1}{1000} \text{ kg}$$

$$1 \text{ lb} = 453.59 \text{ g}$$

$$1 \text{ lb} = 453.59 \times \frac{1}{1000} \text{ kg}$$

$$= 0.45359 \text{ kg.}$$

(32) Convert the following -

$$a) 200 \text{ kg} = \underline{0.2} \text{ metric tonne}$$

$$b) 150 \text{ kg} = \underline{1.5} \text{ quintal}$$

$$c) 10 \text{ lb} = \underline{4.5359} \text{ kg}$$

$$d) 250 \text{ g} = \underline{0.25} \text{ kg}$$

$$e) 0.01 \text{ kg} = \underline{10} \text{ g}$$

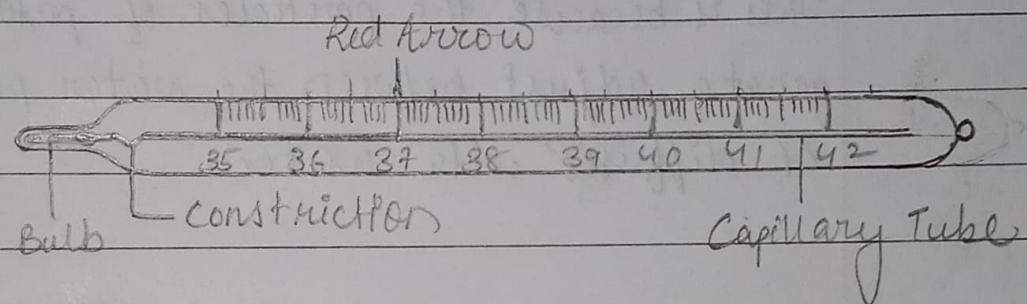
$$f) 5 \text{ mg} = \underline{5 \times 10^{-6}} \text{ kg}$$

(33) What is a clinical thermometer? State its special feature. Draw a labelled neat diagram of a clinical thermometer showing the range of temperature marked on it. What is a normal temperature of the human body? How is it indicated in a clinical thermometer?

Ans- The special thermometers used by doctors for measuring the temperature of a patient's body is called a clinical thermometer. This thermometer has a kink in its stem just above the bulb. This kink is called constriction. The constriction prevents the mercury from falling back all by itself.

The normal temperature of a ^{human} patient's body is 37°C or 98.6°F .

This temperature is marked by a red arrow



(34) Fill in the blanks :-

a) The SI unit of length is metre (m), of time is second (s), of mass is kilogram (kg).

b) $^{\circ}\text{C}$ is the unit of temperature.

c) 1 metric tonne = 10 quintal = 1000 kg.

d) The zero mark in Celsius thermometer is the melting of water.

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.

(35) Take a beaker and fill it partly with water. Add 2-3 crystals of potassium permanganate in it. ~~we~~ The colour of water changes into deep purple and the level of water doesn't increase. This is because the particles of potassium permanganate adjust between the water particles, i.e., it diffuses with water.