HOLIDAY HOMEWORK (PHYSICS)

1. MCQs

1. Which change can occur when you add heat energy to water?
c) The water can change from a liquid to 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 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 change the
d) All of these (motion of body, speed of body, shape of body)

6. Which of the following is responsible for wearing out of bicycle tyres?
c) Frictional force

7. Force of friction depends on
d) All of these (roughness, smoothness and inclanation of surface)

8. A toy car released with the same initial speed will travel faster 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 elephant drags a 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 has to be changed, a force will have to be applied on it.

14. A force of friction always acts against the motion.

15. (a) An object falling from a tall building. (gravitational force)

(b) An aeroplane flying in the 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) 1 cm = $\frac{1}{100}$ m

100 cm = 1 m

1 cm = $\frac{1}{100}$ m

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

1000 mm = 1 m

1 mm = $\frac{1}{1000}$ m

d) 1 yard = 3 ft.

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

10 decimetre = 1 m

1 decimetre = $\frac{1}{10}$ m

f) 1 decametre = 10 m

g) 1 hectometre = 100 m

b) 1 gm = $\frac{1}{1000}$ kg

1000 gm = 1 kg

1 gm = $\frac{1}{1000}$ kg

(i) 1 mg = ____ kg

1000 mg = 1 g

1 mg = $\frac{1}{1000}$ g

1000 g = 1 kg

1 g = $\frac{1}{1000}$ kg

$\frac{1}{1000}$ g = $\frac{1}{1000} \times \frac{1}{1000}$ kg

= $\frac{1}{1000000} = 10^{-6}$ kg

j) 1 lb = 453.59 g

k) 1 h = 3600 s

1 h = 60 min

60 min = 60 × 60 sec

= 3600 sec

l) 1 year = 3,15,36,000s

1 day = 24 hours

1h = 3600s
24h = 24 × 3600s
= 86400s

1 year = 365 days

1 day = 86400s
365 days = 365 × 86400
= 3,15,36,000

m) 1 day = 86400 s

1 day = 24 hrs

1h = 3600s
24hs = 3600 × 24
= 86400s

n) 1 decametre^2 = 10m × 10m
= 100m^2

o) 1 hectare = 10000 m^2

1 hectare = 100m × 100m
= 10000m^2

p) 1

q)

r)

s)

t)

u)

v)

p) $1 km^2 = 10,00,000\ m^2$

$1 km^2 = 1000m \times 1000m$

$= 10,00,000 m^2$

q) $1 dm^2 =$ 100 cm^2

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

$1 cm^2 = \frac{1}{100} m \times \frac{1}{100} m$

$= \frac{1}{10000} = 10^{-4} m^2$

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

$1 mm^2 = \frac{1}{1000} m \times \frac{1}{1000} m$

$= \frac{1}{1000000} m^2 = 10^{-6} m^2$

t) 1 square yard = 0.836 m^2

1 square yard = 1 yard × 1 yard

$= 0.9144m \times 0.9144m$

$= 0.836 m^2$

u) 1 square feet = 0.09290 m^2

v) 1 acre = 4046.856 m^2

11. 17. What are the effects of friction?

The effects of friction are:

1. Friction opposes motion
2. Friction acts on the opposite direction of direction of motion.
3. Friction produces heat
4. Friction causes wear and tear.

18. What are the ~~friction~~ factors effect force of friction and how?

The factors that effect the force of friction are:

1. Smoothness of the surface
2. Nature of medium in which the body moves.
3. Weight of the moving body on the surface.

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

Static friction = a force that hinders the movement of an object moving along the path is called static friction.

Sliding friction = When the body begins to slide on a surface, the force exerted by the surface on the object is called the sliding friction.

Rolling friction = When an object rolls over a surface, the force which opposes the rolling motion of the object is called the rolling friction.

20. What

21. Why

22. The

24. (a)

(b)

(c)

20. What are the disadvantages of friction?

The disadvatages of feriction are:

1. Feriction opposes ~~wear and~~ motion of the body. so it decreases the efficiency.
2. Feriction causes wear and tear in the moving parts.
3. Feriction produces heat.

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

When a matchstick ~~catch fire~~ is rubbed on the rough surface of the box, feriction occures. As friction produces heat it helps the matchstick in catching fire.

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

When we walk the sole of shoes come in contact with a rough surface producing feriction. This feriction causes wear and tear due to which the sole of shoes get worn after some time.

24. (a) 12inch = ft

12inch = 1ft

(b) 1ft = cm

1ft = 30.48cm

(c) 20cm = m

100cm = 1m

1cm = $\frac{1}{100}$ m

20cm = $\frac{1}{100} \times 20 = \frac{1}{5}$ m

(d) 4.2m = cm

1m = 100cm

4m = ~~400cm~~ 4X100 = 400cm

4.2m = 400 + 2cm = 402cm

(e) 0.2km = m

1km = 1000m

0.2km = 0.2 X 1000 = 200m

f) 0.2cm = MM

1cm = 10mm
0.2cm = 0.2 × 10 = 2MM

g) 1 yard = m
1 yard = 0.91 m

3 MARK QUESTIONS:

25. • Applied force - Force is a cause (a push or pull) which tends to result in the movement of a body.

• Tension - Tension is a force which occurs when a string is ~~stretch~~ stretched stretched.

• Frictional force - A force which slows down the motion of a body in contact with the surface of another body is ~~also~~ called frictional force.

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

SOLID	LIQUID	GAS
* Definite volume & shape.	* Definite volume but no definite shape.	* Indefinite shape & volume.
* Highest intermolecular force	* Less intermolecular force	* Least intermolecular force
* Least intermolecular space	* More intermolecular space than solid	* Highest intermolecular space

27. Most substances can change from one state to another under different conditions of temperature and pressure. Explain with example.
Most substance can change their state under different conditions of temperature and pressure.

is possible because of the ~~more~~ molecules in a matter. For example, when water is ~~Do~~ heated the molecules of ~~wa~~ water start becoming far from each other. Thus the intermolecular space is more and thus becomes a gas.

28. Why?

(a) Machines are oiled from time to time.
This is because oil decreases friction and too much friction causes wear and tear.

(b) An object thrown upwards comes down after reaching a point.
This is because of the gravitational force of Earth.

(c) Powder is sprinkled on a carom board.
Powed is sprinkled on a carom board to smoothens the surface and decreases friction.

29. Explain increasing and ~~dec~~ decreases friction with suitable examples.
~~Anything that~~ Friction increases when there in a rough surface. For example, cycle moves slower in the road than marble floor. We can also ~~see~~ that there is more friction in dry surface.
Friction decreases when there is a smooth surface. For example, it is easier to run in tiled floors than cement floors. There is less

friction

30. Cartila
which
carti
his a
body
rub
And
les

31.

(ii)
(iii) E

32. (a) 200

1000

20

friction is wet surface.

30. Cartilage is present in joints of our body, which helps in their smooth movements. If cartilage wears off, how would his affect the movements of joints?

Cartilage is a very important thing for our body. If it wears of, the bones of the body will rub against another bones, and thus cause friction And friction causes wear and tear which will lead to finishing of bone.

31. Define mass. State its (i) S.I (ii) C.G.S and (iii) F.P.S units.

A mass ~~of the~~ of a body is the quantity or matter stored in it.

(i) S.I ⇒ Kilogram
(ii) C.G.S ⇒ gram
(iii) F.P.S ⇒ pound

32. (a) 200kg = $\frac{1}{5}$ metric tonne (mt)

1000kg = 1mt

1kg = $\frac{1}{1000}$ mt

200kg = $\frac{1}{1000} \times 200 = \frac{1}{5}$ mt

(b) 150 kg = 1.5 quintal

100 kg = 1 quintal

1 kg = $\frac{1}{100}$ quintal

150 kg = $\frac{1}{100} \times 150$ = 1.5 quintal

(c) 10 lb = 4.53590 kg

1 lb = 453.59 g

10 lb = 453.59 × 10 g = 4535.90 g

1000 g = 1 kg

1 g = $\frac{1}{1000}$ kg

4535.9 g = $\frac{1}{1000} \times 4535.9$ =

1 lb = 453.59 g

1000 g = 1 kg

1 g = $\frac{1}{1000}$ kg

453.59 g = $\frac{1}{1000} \times 453.59$ = 0.45359 kg

1 lb = 0.45359 kg

10 lb = 0.45359 × 10 = 4.53590 kg

(d) $250g = \frac{1}{4}\ kg$

$1000g = 1kg$

$1g = \frac{1}{1000}kg$

$250g = \frac{1}{1000} \times 250 = \frac{1}{4}kg$

(e) $0.01kg = 10\ g$

$1kg = 1000g$

$0.01kg = 0.01 \times 1000 = 10g$

(f) $5mg = \frac{1}{200000}\ kg$

$1000mg = 1g$

$1mg = \frac{1}{1000}g = 10^{-3}g$

~~$5mg = \frac{1}{100} \times 5 = \frac{1}{20}g$~~

20

$1000g = 1kg$

$1g = \frac{1}{1000}kg$

$10^{-2}g = \frac{1}{1000} \times \frac{1}{1000} = \frac{1}{1000000} = 10^{-6}kg$

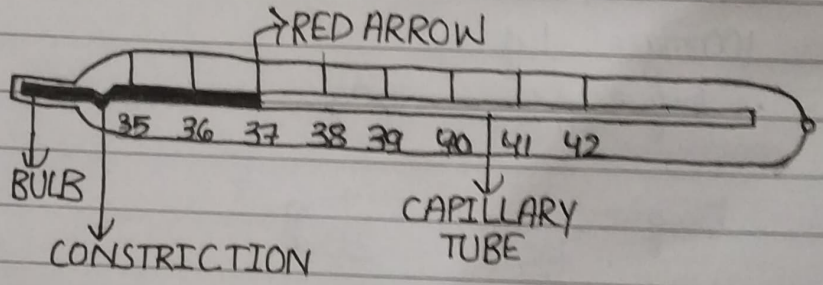
$1mg = 10^{-6}kg$

$5mg = \frac{1}{1000000} \times 5 = \frac{1}{200000}kg$

$2,00,000$

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

A thermometer which shows us the body temperature is called clinical thermometer. It is usually used by Doctors to check a patients temperature. It has markings from 35°C to 42°C. The normal temperature of a human is 37°C and 98.4°F. There is a red ~~arrow~~ ~~the~~ line on the marking 37°C as shown in the diagram.



34. (a) The S.I unit of length is metre of time is second of mass is kilogram.

(b) °C is the unit of temperature

(c) 1 metric tonne = 1000 kg.

(d) The zero mark in Celsius thermometer is the melting point of ~~water~~ 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 98.4°F.

35. When we take a crystal of potassium permangnate and place it in 100ml water. It is a deep black purple in colour. Then we add 10ml of that water to another 100ml of water, the colour becomes lighter. Do the same process and get lighter and lighter water. This shows that a single crystal has so many particles that goes to the other beaker and gives colour.