PRAKASAM DISTRICT COMMON EXAMINATION BOARD

QUARTERLY EXAMINATIONS-OCTOBER-2015

GENERAL SCIENCE , Paper – I

(Physical Sciences)

(English Version)

Time: $2\frac{1}{2}$ Hours **Parts A and B** **Maximum Marks : 50**

Class-09 - KEY SHEET - PART-A

Section - I

Group -A

1. If we get sweat, the sweat evaporates from the surface of our body by absorbing heat from our body. Thus the particles of liquid absorb energy from the body to escape to the surroundings. It makes us feel cold. So I appreciate the sweating mechanism of human body to control the temperature.

2. The surface area is quite large for saucer, compared to a cup. So evaporation is fast in saucer. As the evaporation is a cooling process, tea cools down fast in a saucer. So we prefer to sip hot tea with a saucer.

3.

	Distance		Displacement
1	The length of the path travelled.	1	The distance travelled in particular direction
2	It is a scalar.	2	It is a vector.
3	Its value is always positive or zero.	3	Its value may positive or zero or negative.

4. Mass of object (m) = 5 Kg.

Initial velocity (u) = 10 m/s

Time (t) = 20 s

Final velocity (v) = 25 m/s

Applied force (F) = ma

$= m\left(\frac{v-u}{t}\right)$

$= 5 \times \left(\frac{25-10}{20}\right)$

$= 5 \times \left(\frac{15}{20}\right)$

$= \frac{15}{4} = 3.75$ N

Group –B

5. Let a body is moving along a curved path. In this case the speed is constant. The direction changes continuously. So The velocity changes.

6.

Elements	Compounds	Mixtures
Sodium	Carbon dioxide	Soil
Silver	Methane	Air
		Blood
	Soap	Soap

Note: In general Soap is a compound. But it contains colours, flavouring substances,… it treated as mixture. Student can write either.

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7. In washing machine , the cylindrical vessel rotates by the shaft attached to motor. As the vessel rotating, centrifugal force acts on the water in outward direction. Thus the water from clothes squeezes out and send out through the holes of vessel.

8. The mass of an object is a measure of inertia. If mass of object increases, the inertia of that object also increases. So the object having 25 Kg. mass has more inertia than the 8 Kg. object.

Section - II

9. $t^oC = (t + 273)K$

$27^oC = (27 + 273)K = 300K$

10. Let an ant is moving on the surface of a ball.
In this case the speed is constant. The direction changes continuously.
So The velocity changes.

11. If an object is in linear (translator) motion, then the distance is equal to displacement.

12. The force that oppose the motion of a body is called friction.

13. Syrup is a suspension. The particles in it settle down after some time.
So before using, we have to shake the syrup to make the particles mix in the liquid.

14. A method that is used to separate the component from the substances like ink.

Section - III

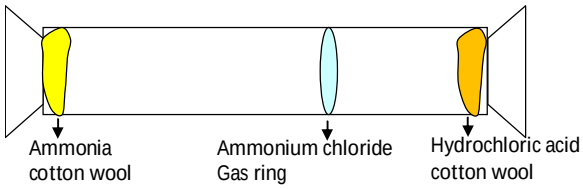
Group -A

15. (i) Take 5ml of spirit in a small plate And take 5ml of spirit in another big plate (without lid). Keep them some time. The spirit in the big dish that disappears quickly, where we find some spirit in the other dish which is small. This means that Evaporation depends upon the surface area of the liquid.

(ii) Take 5ml of spirit in two small cups. Put one cup in the A.C. room and put another in the normal room. Measure the time taken for disappear the spirit from the cups. The spirit in the normal room disappears quickly. This means that the rate of evaporation depends upon the vapour already present in surrounding area.

(iii) Take 5ml of spirit in two small cups. Put one cup under a fan. other in the normal room. Measure the time taken for disappear the spirit from the cups. The spirit in the cup under fan disappears quickly. This means that the rate of evaporation depends upon the wind speed.

16. **Procedure:** Take the glass tube. Take two pieces of cotton. Soak one in hydrochloric acid solution and the other in Ammonia solution. Keep the cotton wools at each ends of the glass tube separately. Close the ends of the tube with rubber corks. After few seconds a white colour gas ring is formed in the glass tube. Measure the distance of the white gas ring from each of the cotton wools. The white colour gas ring is nearer to the HCl cotton wool. It is sure that the Ammonia gas diffuses quickly. This is because Ammonia is a light gas compared to Hydrogen chloride gas.



17. Let us assume that the car travels for **2t** time.

for first ‘t’ hours Distance = velocity x time = 80 x t = 80t Km

for second ‘t’ hours Distance = velocity x time = 40 x t = 40t Km

Total distance travelled = 80t + 40t = 120t Km

Total time = ‘2t’ hours

Average speed = $\frac{Total\ Distance}{Total\ Time}$

$= \frac{120t}{2t} = 60\ {}^{Km}/_{h}$

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18. Newton's first law of motion: A body continues its state of rest or uniform motion unless a net force acts on it.

Ex: When the bus which is at rest begins to move suddenly, the person standing in the bus falls backward. This happens because, the net force not acts on the person, so that he still remains his state of motion.

Newton's second law of motion: The rate of change of momentum of a body is directly proportional to the net force acting on it . And it takes place in the direction of net force.

Ex: The fielder while catching a fast moving ball, pulls back his arms to experience the smaller force on his hands. This is due to change in momentum takes a long time.

Newton's third law of motion: For every action, there should be equal and opposite reaction.

Ex: When birds fly, they push the air downwards with wings and the air pushes back the bird in upward direction with same force. This way the birds can fly.

Group -B

19. Suspensions : Heterogeneous mixtures. The particles of suspensions can be seen with naked eyes. The particles of a suspension scatter a beam of light passing through it and make its path visible. The solute particles settle down when the suspension is kept undisturbed. Suspension is unstable.

Colloids: Heterogeneous mixtures. The size of particles of a colloid is too small to be individually seen by naked eyes. Colloids are big enough to scatter a beam of light passing through it which makes its path visible. They don't settle down When the particles left undisturbed. i.e., colloid is quite stable.

20. Take ammonium chloride and salt mixture in a watch glass. Keep the watch glass on a tripod. Heat it with burner. Ammonium chloride sublimates and the salt remains in the watch glass. If we want to collect ammonium chloride, we keep a funnel inverted on the watch glass by arranging delivery tube to it.

21. If an object with mass m_1 is moving with u_1 velocity and colloid with another body of mass m_2 and moving with velocity u_2. After collision they move with v_1 and v_2 velocities. Time t.

As per Newton's third law Force = - anti force

$$m_1 . a_1 = - m_2 . a_2$$

$$m_1 . \left(\frac{v_1 - u_1}{t}\right) = - m_2 . \left(\frac{v_2 - u_2}{t}\right)$$

$$m_1 . V_1 - m_1 . U_1 = m_2 . U_2 - m_2 . V_2$$

$$m_1 . U_1 + m_2 . U_2 = m_1 . V_1 + m_2 . V_2$$

The sum of momentums of bodies is constant. This is law of conservation of momentum.

22. A body starts with velocity **u** and travel in **t** time with uniform acceleration **a** and has a displacement **S**. Attained final velocity **v**.

Displacement = Average velocity X time

$$S = \frac{U+V}{2} \text{ X } t$$

But $V = u + at$ so

$$S = \frac{U+U+at}{2} \text{ X } t$$

$$S = \frac{2U+at}{2} \text{ X } t$$

$$S = Ut + \frac{1}{2} at^2$$

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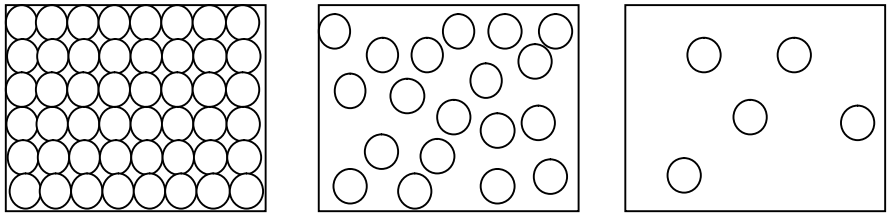
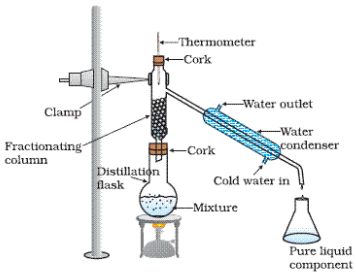
Section - IV

23. Molecules arrangement in solids, liquids and gases:



Solids Liquids Gases

24. **Fractional distillation:**



KEY SHEET - PART-B

Sl No.	Ans.	Sl No.	Ans.	Sl No.	Ans.
1	C	**11**	A	**21**	Dry ice
2	A	**12**	B	**22**	acceleration
3	D	**13**	C	**23**	Mass, velocity
4	D	**14**	C	**24**	Isolated
5	*	**15**	B	**25**	Colloid (or) Suspension
6	B	**16**	D	**26**	D
7	C	**17**	A	**27**	A
8	B	**18**	A or C	**28**	B
9	A	**19**	B	**29**	E
10	C	**20**	A	**30**	C

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