

PRAKASAM DISTRICT COMMON EXAMINATION BOARD

SUMMATIVE ASSESSMENT-II - JANUARY-2016

GENERAL SCIENCE , Paper – I

(Physical Sciences)

(English Version)

Time: $2\frac{1}{2}$ Hours

Parts A and B

Maximum Marks : 40

Class-09 - KEY SHEET - PART-A&B

Section - I

- The three states of matter are (i) Solid (ii) Liquid (iii) Gas
- The teacher may ask the following questions.
 - What do you observe in the figure?
 - How many forces acting in this situation?
- Rutherford conducted α - particle scattering experiment.
- When a boy is doing sit ups , the centre of gravity lie on the vertical line passes through the mid point of his body.

Section - II

- The temperature of steam is more than temperature of boiling water. So steam produces more severe burns than boiling water.
- Differences between speed and velocity.

	Speed		Velocity
1	The distance travelled by the body in unit time.	1	The displacement of the body in unit time.
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	Speed = $\frac{Distance}{Time}$	4	Velocity = $\frac{Displacement}{Time}$

- I can ask the following questions in survey.
 - How do you separate stones from rice?
 - How do you separate husk from rice?
 - How do you separate tea from tea powder?
 - How do you separate lemon seeds from lemanode?

8. Table:

Name	Symbol	Atomic number (Z)	Mass Number (A)	Number of neutrons (N)	Number of electrons (e)
Oxygen	$^{16}\text{O}_8$	8	16	8	8
Beryllium	$^9\text{Be}_4$	4	9	5	4
Magnesium	$^{24}\text{Mg}_{12}$	12	24	12	12

- The long pole is beneficial for the rope walker to adjust the centre of gravity at the middle of the rope. If the pole has slight bending, it is more beneficial for him. As the stability depends upon the height of centre of gravity.

Section - III

- Length of train = 50 m
Length of bridge = 250 m
Speed of train = 10 m/s

In case of crossing an electric pole: Distance = length of train = 50 m

$$Time = \frac{Distance\ travelled}{Speed\ of\ train} = \frac{50}{10} = 5\ sec.$$

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In case of crossing a bridge: Distance = length of train + length of bridge

$$= 50 + 250 = 300 \text{ m}$$

$$\text{Time} = \frac{\text{Distance travelled}}{\text{Speed of train}} = \frac{300}{10} = 30 \text{ sec.}$$

(OR)

Law of conservation of momentum : The sum of momentums of bodies is constant, when a collision takes place.

Derivation : If an object with mass m_1 is moving with u_1 velocity and collid 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

$$m_1 \cdot a_1 = - m_2 \cdot a_2$$

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

$$m_1 \cdot V_1 - m_1 \cdot U_1 = m_2 \cdot U_2 - m_2 \cdot V_2$$

$$m_1 \cdot U_1 + m_2 \cdot U_2 = m_1 \cdot V_1 + m_2 \cdot V_2$$

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

11. (i) Atomicity : The number of atoms constituting a molecule is known as its atomicity.
(or) The number of atoms in a molecule is called as atomicity.
- (ii) Valency : The atoms of elements have the power to combine with atoms of other elements. This is called valency.
(or) The number of hydrogen atoms can combine with an atom is called its valency.
- (iii) Ion : An atom can gain or loose electrons and form ions.
- (iv) Atomic mass of an atom : The number of times one atom is heavier than $\frac{1}{12}$ th part of carbon atom mass is called as atomic mass of that atom.
(or) The total number of protons and neutrons in an atom is called as atomic mass of that atom.

(OR)

Main postulates of Bohr's atomic model:

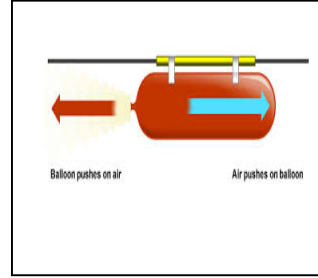
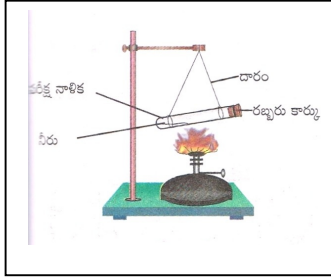
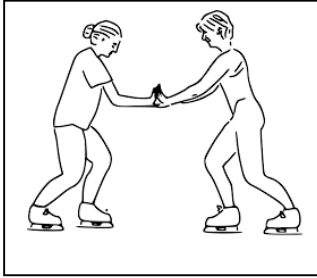
- (i) Electrons revolve around the nucleus in specified paths called shells or orbits.
- (ii) the shells are denoted with K,L,M,N,... or 1,2,3,4,.....
- (iii) While electron revolve around the nucleus, it does not loose any energy or gain energy.
- (iv)
12. (i) Take 5ml of spirit in a small plate And 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.

(OR)

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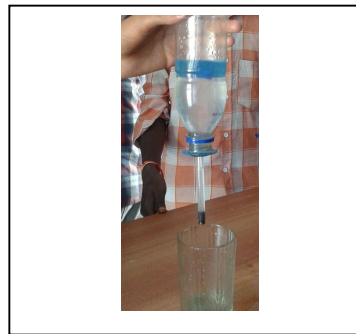
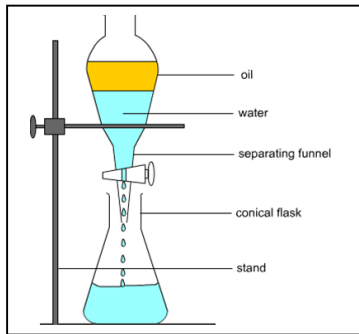
Finding centre of gravity of India map made up of steel: Take India map of steel. Make three holes at three different corners. First Suspend the map from a fixed point with a thread. Now take a pendulum bob and suspend it from the hole. The line passing through the thread gives the line of force from that point. Repeat the same activity from other points. All three lines intersect at a single point. That point is the centre of gravity of that map.

13. Action and reaction acting on two different bodies. (any one figure)



(OR)

Separation process of oil and water mixture.



Section - IV

S. No	Ans.	S. No	Ans.	S. No	Ans.	S. No	Ans.
14	A	19	C	24	A	29	D
15	B	20	B	25	C	30	A
16	C	21	A	26	A	31	B
17	D	22	B	27	C	32	C
18	D	23	D	28	B	33	D

Note : * means allot full marks.