ANDHRA PRADESH COMMON EXAMINATIONS
SUMMATIVE ASSESSMENT-III - APRIL-2016
GENERAL SCIENCE , Paper – I
(Physical Sciences)
(English Version)
<u>Class-09 - Principles of Evaluation - PART-A &B</u>

Q.No	Points for Evaluation	Marks allotted	Total Marks
1.	(i) Compressions (ii) Rarefactions **(any related answer also suitable even it is in one sentence)**	2x½	1
2.	(i) Heat the solution (ii) Add some more sugar – super saturated solution is formed **(any related answer also suitable even it is in one sentence)**	2x½	1
3.	(As there is no diagram given in Question paper – No answer for this question) **(Allot 1 mark for each student for this question – add mark)**	1	1
4.	Number of moles in 32 grams of oxygen = 1 mol Number of moles in 8 grams of oxygen = $\frac{8}{32}$ x 1 = $\frac{1}{4}$ mol (or) 0.25 mol **(any related answer also suitable even it contains only second sentence)**	1	1
5.	There is no situation that two particles do not exerts gravitational force on each other.	1	2
	Because every massive substance exerts gravitational force on other body. **(any related answer also suitable even it contains only second sentence)**	1	
6.	(i) What is compound? (ii) What is mixture? (iii) Is tincture of Iodine contains more than one substance? (iv) Is tincture of Iodine contains only one component? (v) Is Tincture of Iodine is a solution? (vi) How Tincture of Iodine prepared? **(any related answer also suitable even it contains only second sentence)**	Any four points 4x½	2
7.	**a**) Pure substance : A material that contains only one type of component. (or) If the composition in a substance is same and one through out the substance, it is pure substance.	4x½	2
	Ex: Gold biscuit contains only gold particles in it Water contains only water (H_2O) molecules in it.		
	b) Colloidal solution : A non homogeneous mixture contains small invisible particles but suitable for scattering of light. (or) A mixture contains particles smaller than those in suspension and bigger than those in solution. And can scatter the light is called colloid.		
	Ex: Smoke is a colloid with solid particles in air. Fog is a colloid with liquid particles in air. **(any related answer also suitable . One example is sufficient in each case)**		

8.	The speed of car to travel first half distance (U) = 60 Kmph The speed of car to travel next half distance (V) = 40 Kmph Average speed $(V_a) = \dfrac{2\,U\,V}{U+V}$ $= \dfrac{2 \times 60 \times 40}{60+40}$ $= \dfrac{2 \times 60 \times 40}{100}$ $= 48$ Kmph **(Data, formula, substitution, answer – 4 points)** (or)	For four points 4x½	2
	Let the distance = 2d Let the time to travel first half distance = t_1 Speed in first half part = 60 Kmph d = Speed X time = $60\,t_1$ Let the time to travel next half distance = t_2 Speed in second half part = 40 Kmph d = Speed X time = $40\,t_2$ Now $60\,t_1 = 40\,t_2$ ➔ $3t_1 = 2t_2$ ➔ $\frac{3}{2}t_1 = t_2$ ➔ $t_2 = 1.5\,t_1$ Total time = $t_1 + t_2 = t_1 + 1.5\,t_1 = 2.5\,t_1$ Total distance = 2d = 2 x $60t_1$ = $120\,t_1$ Average speed $= \dfrac{Total\ distance}{Total\ time} = \dfrac{120\,t_1}{2.5\,t_1} = \dfrac{1200}{25} = 48$ Kmph **(any related answer also suitable)**	4x½	2
9.	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. **(any related two points)**	2x1	2

10A.	Mass of the ball (m) = 10 Kg
	Height of the ball (h) = 10 m
	Acceleration due to gravity (g) = 9.8 m/s^2
	a) The initial potential energy (P.E.) = mgh = 10 x 9.8 x 10 = 980 J
	b) The Kinetic energy of the ball before reaching the ground = 980 J
	   (As per law of conservation of energy, the total potential energy of ball at
	   initial point converts to Kinetic energy when it reaches the ground.)
	(any related answer also suitable even they use g = 10 m/s^2) (or)
		1
		
		2
		1
			4

	Mass of the ball (m) = 10 Kg
	Height of the ball (h) = 10 m
	Acceleration due to gravity (g) = 9.8 m/s^2
	a) The initial potential energy (P.E.) = mgh = 10 x 9.8 x 10 = 980 J
	b) The Kinetic energy of the ball before reaching the ground $= \frac{1}{2}$ mv^2
	
	   The final velocity (v) $= \sqrt{2gh} = \sqrt{2 \times 9.8 \times 10} = \sqrt{196} = 14$ m/s
	
	   K.E. $= \frac{1}{2}$ mv^2 $= \frac{1}{2}$ (10)(14)^2 = 5 x 196 = 980 J
	(any related answer also suitable even they use g = 10 m/s^2)
		1
		
		1
		
		1
		
		1
			4

	(OR)		
10B.	**a)** (As there is no model table given in Question paper – No answer for this question)	2	
	(Allot 2 marks for each student for this part of question – add mark)		4
	Time for echo (t) = 6 s		
	Speed of sound in sea water (v) = 1500 m/s	½	
	Let depth of sea = d meters		
	Distance travelled by sound = 2d = speed x time = 1500 x 6 = 9000 m/s	1	
	Depth of sea (d) = 4500 m		
	(any related answer also suitable)	½	
11A.	Finding relative density of kerosene:		
	(i) Find the mass of small measuring jar or beaker. (m_1)		
	(ii) Take 20 ml of water in the jar and find the mass.(m_2)		
	The difference gives the mass of water of 20 ml. (m_1-m_2)		
	(iii) Take 20 ml of kerosene in the jar and find the mass.(m_3)		
	Deduct the mass of jar from this we get the mass of 20ml kerosene .	4x1	4
	(m_3-m_1)		
	(iv) The relative density of Kerosene = $\dfrac{Mass\ of\ kerosene}{Mass\ of\ water\ of\ same\ volume}$		
	By this way we can measure the relative density.		
	(any related answer also suitable even they contain no symbols like m_1)		
	(OR)		
11B.	To prove Newton's third law of motion:		
	(i) Take some water in a test tube and fit rubber cork as cap.		
	(ii) Tie the test tube with a thread at both ends and Suspend it to a stand.	4x1	4
	(ii) Heat the test tube with a burner or candle		
	(iv) Evaporated water apply force on cork. It comes out. As a result of opposite force, the test tube move in the opposite direction of the motion of cork.		
	(any related answer also suitable . Diagram is not necessary.)		
	(Balloon rocket experiment or any other activity should treat as suitable)		
12A.	**a)** Molecular weight of $CaCO_3$ = (1x40) + (1x12) + (3x16) =		
	= 40 + 12 + 48 = 100 units	2	
	b) The molecular weight of a molecule = 18		
	It contains oxygen and Hydrogen.		4
	It contains 1 oxygen and 2 hydrogen atoms. (16+1+1 = 18)		
	The formula may be H_2O.	2	
	(any related answer also suitable)		
	(OR)		
12B.	**a)** Hydrogen has more diffusion rate. Because it is gas.		
	b) Water (or) Iron rod (or) Lead shot		
	c) Honey , Water	4x1	4
	d) Wooden block. Lead shot, Iron rod		
	(any matter that gives brief description in 4 points)		
	(Water boils at 100°C, Iron boils at 2856°C, Lead boils at 1750°C)		

13A.		3	4
	(any diagram related is sufficient. Meaningful diagram is enough.) (Time readings are not important as the data is insufficient in the question. So The student can draw a model graph.) (Neatness is not necessary , rough diagram is sufficient.)	1	
	(OR)		
13B.	**a**) Structure of atom : **(any diagram related is sufficient. Meaningful diagram is enough.)** (Neatness is not important as this question is not given to test artists skill.)	3	4
	b) Mass of proton or neutron is nearly 2000 times than that of mass of electron. So we neglect the mass of electron while calculating atomic mass. **(any related answer also suitable)**	1	

PART - B

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

Note : * means allot full marks. Each question carries ½ mark.

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