## **PRAKASAM** DISTRICT COMMON EXAMINATION BOARD QUARTERLY EXAMINATIONS-OCTOBER-2014

## **GENERAL SCIENCE**, Paper – I

(Physical Sciences)

## (English Version)

## **Class-10 - Principles of Evaluation - PART-A**

Q.No	Points for Evaluation	Marks allotted	Total Marks
1.	* Does boiling of a substance takes place at any temperature?	Any four	
	* Does evaporation occurs at any temperature or not?	points related	
	* Is evaporation a surface phenomenon or bulk phenomenon?	$1 \text{ match}^{1}$	
	* At which temperature does water boils?	4X - 2	2
	* The water in wet clothes dries due to wind. Is wind provides 100°C?		
2.	(i)Water has highest specific heat value. It takes more time to raise its		
	temperature.		
	(ii)water at the surface in well gets evaporated. But the heat energy does		
	not transferred to the water under the surface.	2x1	2
	So the ground water maintained a constant temperature, as a result		
	well water is cool in summer.		
3.	(i) Many optical instruments were not invented.	Any four points	
	(ii) We can not solve the problem of inverted images.	related	
	(iii) We can't use spherical mirrors in head lights of vehicles, side	$4x\frac{1}{2}$	2
	mirrors and rear view mirrors.	2	2
	(iv) Dentists can't perform their treatment easily with out these mirrors.		
4	(v) Solar cookers were not yet invented.		
4.	(1) Due to refraction, the fish appears to be raised and seems to be close		
	(ii) The shorter aims the gun to apparent position of fich instead of real		
	nosition	2v1	2
	Hence it is very difficult to shoot a fish swimming in water		2
5	Corrosion can be prevented by shielding the metal surface	Any four	
	(i) painting (ii) oiling (iii) greasing (iv) galvanizing (v) chrome plating	points	
	(vi) making allovs	related	
		$4x\frac{1}{2}$	2
6.	When fats and oils are oxidized their smell and taste changes.		
	This is called rancidity.	2x1	2
7.	i) It used in glass, soap and paper industries.	Any four	
	ii) It is used in the manufacture of sodium compounds such as borax.	related	
	iii) It can be used as a cleaning agent for domestic purposes.	$4x^{\frac{1}{2}}$	_
	iv) It is used for removing permanent hardness of water.	2	2
8.	(i) The reaction between an acid and a base to produce salt and water		-
	(or) Acid + Base $\rightarrow$ Salt + Water	2x1	2
	(11)Ex: HCl + NaOH $\rightarrow$ NaCl + H <sub>2</sub> O (or) any one other example		
9.	a liquid phase changes to solid phase		1
10.	$\frac{C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O}{1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +$		1
11.	Generally oxidation and reduction occur in the same reaction.		
10	I nese are called oxidation-reduction reactions or Kedox reactions.	1 1	1
12.	Pierre.D.Fermat		1
13.	Adding acid to water is an exothermic process.	$2x\frac{1}{2}$	1
	because neat is evolved in this process	-	1

14.	The incident angle for which the angle of refraction is 90°	1x1	1
15.	(i) Evaporation depends upon the surface area of the liquid: Take 5ml		
	of spirit in a small plate And in another big plate .Keep them some time.		
	(ii) <u>Observation</u> : The spirit in the big dish that disappears quickly. If	2x1=2	
	surface area increases the rate of evaporation also increases.		
	(i)Evaporation depends upon the vapour present in surrounding area:		4
	Take 5ml of spirit in two small cups. Put one cup in the A.C. room and		
	put another in the normal room. Keep them for some time.	2x1=2	
	(ii) <u>Observation</u> : The spirit in the normal room disappears quickly. If the		
	vapour in atmosphere increases then the rate of evaporation decreases.		
16.	(1) find the mass of the calorimeter (vessel) $(m_1)$ .		
	(2) Fill half of the calorimeter with water and find the mass of		
	calorimeter with water $(m_2)$ .		
	(3) Measure the initial temperature of calorimeter and water ( $T_1$ °C).		
	(4) Take a few lead shots and place them in hot water of $100^{\circ}$ C.		
	measure the temperature of lead shots $(T_2^{\circ}C)$ .		
	(5) I ransfer the lead shots into calorimeter quickly	1	4
	(6) Note the final temperature $(1_3 C)$ .	$8 x \frac{1}{2}$	4
	(7) Measure mass of calorimeter along with water and lead shots $(m_3)$ .		
	(8) Heat $(Q) = \text{m.s.}\Delta I$		
	Heat lost by the solid – Heat gained by calorimeter + Heat		
	gained by water		
	$(m_{2},m_{2}) = m_{1} S (T_{2},T_{2}) + (m_{2},m_{1}) S (T_{2},T_{1})$		
	$[m_1 S_{C} + (m_2 - m_1) S_{W}][T_3 - T_1]$		
	$S_l = \frac{(T_1 - T_2) - (T_1 - T_3)}{(T_3 - T_2)(T_2 - T_3)}$		
	This way we can find the specific heat of a solid.		
	Take $S_w = 1 \text{ cal/gm} - {}^{\circ}C$ $S_c = 0.095 \text{ cal/gm} - {}^{\circ}C$		
17.	(for concave mirror u taken with positive sign)		
	(u) = -30cm; (f) = -20cm; (R) = 2f = 40cm; (v) = ?; Formula: $\frac{1}{v} + \frac{1}{v} = \frac{1}{f}$	1	
	$\frac{1}{2} = \frac{1}{2} - \frac{1}{2} = \frac{1}{2} - \frac{1}{2} = \frac{-30 + 20}{2} = \frac{-10}{2} = \frac{-1}{2} \rightarrow 12 = -60 \text{ cm}$	$2x\frac{1}{2} = 1$	
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		
	$(H_o) = 5 \text{ cm}; (H_i) = ?$ Magnification $(m) = \frac{1}{H_o} = -\frac{1}{u}$		
	$\rightarrow \frac{H_i}{H_i} = -\frac{-60}{H_i} \rightarrow H_i = -10 \text{ cm}$	$2X - \frac{1}{2} = 1$	4
	5 -30		
	<b>Properties of image:</b> Object is placed between "F" and "C"		
	The image is (i) formed beyond "C" (at 60 cm distance)	$\int 4\mathbf{x} \frac{1}{2} - 2$	
	(ii) enlarged. (size of image is 10 cm.) (iii) inverted. (iv) real image	$\left  \frac{1}{2} - 2 \right $	
18	Take a cylindrical transparent vessel of 1 lit		
10.	Place a coin at the bottom of the vessel.	$4\mathbf{x}^{\frac{1}{2}} - 2$	
	Pour water until you get the image of coin on the water surface.	4x - 2	
	This is the phenomenon of total internal reflection.		
	When light passes from denser medium to rarer medium. If the angle of		4
	incidence is more than critical angle, then total internal reflection	1	
	occurs.		
		1	

19.	Chemical reactions 4 types. 1) combination 2) decomposition 3) displacement 4) double displacement		
	<u>Chemical combination</u> : A reaction which a single product is formed from two or more reactants Ex: $S + O_2 \rightarrow SO_2$ (or) any one other example	$2x\frac{1}{2} = 1$	
	Chemical decomposition: If one substance decomposes into two or more substances Ex: $2H_2O \rightarrow 2H_2 + O_2$ (or) any one other example	$2x\frac{1}{2} = 1$	
	<u>Chemical displacement:</u> If one element displaces another element from its compound Ex: $Zn + 2HCl \rightarrow ZnCl_2 + H_2$ (or) any one other example	$2x\frac{1}{2} = 1$	4
	<u>Chemical double displacement :</u> If two reactants exchange their constituents chemically and form two new products Ex: $Pb(NO_3)_2 + 2KI \rightarrow PbI_2 + 2KNO_3$ (or) any one other example	$2x\frac{1}{2} = 1$	
20.	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$2x\frac{1}{2} = 1$	Δ
	The weight of Zinc required to get 2gm of Hydrogen = $65$ gm The weight of Zinc required to get 20gm of Hydrogen = $\frac{20}{2}$ x 65gm = $10x65$ gm = $650$ gm.	3x1=3	т
21.	<ul> <li>(i) blood</li> <li>(ii) juice, orange juice, milk</li> <li>(iii) NaHCO<sub>3</sub> Solution</li> <li>(iv) Na CO<sub>4</sub> solution NeHCO<sub>4</sub> solution</li> </ul>	4x1=4	4
22.	<ul> <li>(iv) Na<sub>2</sub>CO<sub>3</sub> solution, NarCO<sub>3</sub> solution</li> <li>(i) Living organisms can survive only in a narrow range of P<sup>H</sup> change.</li> <li>(ii) If P<sup>H</sup> in mouth is lower than 5.5, then tooth decay starts.</li> <li>(iii) Digestion in stomach depends upon P<sup>H</sup> changes of Gastric juice.</li> <li>(iv) Plants requires a specific P<sup>H</sup> range for their healthy growth.</li> </ul>	4x1=4	4
23.	Ray diagram for the formation of image when an object is placed at centre of curvature of a concave mirror is	Heading 1 $1x2=2\frac{1}{2}$	5
	Properties of image : (i) real image (ii) inverted (iii) same size	$3x\frac{1}{2}=1\frac{1}{2}$	
24	6 volt battery HH Bulb 6 volt battery HH Bulb Beaker Beaker Glucose solution Rubber cork	2x2=4 Parts 1	5

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Sl No.	Ans.	Sl No.	Ans.	Sl No.	Ans.
1	D	11	А	21	Remains constant
2	С	12	С	22	106
3	В	13	А	23	$\frac{v}{u}$
4	А	14	В	24	Red
5	А	15	С	25	2x10 <sup>8</sup> m/s
6	В	16	D	26	С
7	С	17	D	27	D
8	D	18	С	28	F
9	В	19	В	29	В
10	D	20	А	30	А

**KEY SHEET - PART-B** 

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