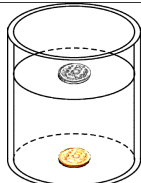


PRAKASAM DISTRICT COMMON EXAMINATION BOARD
QUARTERLY EXAMINATIONS-OCTOBER-2014
GENERAL SCIENCE , Paper – I
 (Physical Sciences)
 (English Version)

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? * Does evaporation occurs at any temperature or not? * Is evaporation a surface phenomenon or bulk phenomenon? * At which temperature does water boils? * The water in wet clothes dries due to wind. Is wind provides 100°C ?	Any four points related $4 \times \frac{1}{2}$	2
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. So the ground water maintained a constant temperature , as a result well water is cool in summer.	2x1	2
3.	(i) Many optical instruments were not invented. (ii) We can not solve the problem of inverted images. (iii) We can't use spherical mirrors in head lights of vehicles, side mirrors and rear view mirrors. (iv) Dentists can't perform their treatment easily with out these mirrors. (v) Solar cookers were not yet invented.	Any four points related $4 \times \frac{1}{2}$	2
4.	(i) Due to refraction, the fish appears to be raised and seems to be close to the surface. The is called apparent depth. (ii) The shooter aims the gun to apparent position of fish instead of real position. Hence it is very difficult to shoot a fish swimming in water.	2x1	2
5.	Corrosion can be prevented by shielding the metal surface (i) painting (ii) oiling (iii) greasing (iv) galvanizing (v) chrome plating (vi) making alloys	Any four points related $4 \times \frac{1}{2}$	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. ii) It is used in the manufacture of sodium compounds such as borax. iii) It can be used as a cleaning agent for domestic purposes. iv) It is used for removing permanent hardness of water.	Any four points related $4 \times \frac{1}{2}$	2
8.	(i) The reaction between an acid and a base to produce salt and water (or) Acid + Base \rightarrow Salt + Water (ii) Ex: HCl + NaOH \rightarrow NaCl + H ₂ O (or) any one other example	2x1	2
9.	a liquid phase changes to solid phase	1x1	1
10.	$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$	1x1	1
11.	Generally oxidation and reduction occur in the same reaction. These are called oxidation-reduction reactions or Redox reactions.	1x1	1
12.	Pierre.D.Fermat	1x1	1
13.	Adding acid to water is an exothermic process. Because heat is evolved in this process	$2 \times \frac{1}{2}$	1

14.	The incident angle for which the angle of refraction is 90°	1x1	1
15.	(i) <u>Evaporation depends upon the surface area of the liquid:</u> 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 surface area increases the rate of evaporation also increases.	2x1=2	4
	(i) <u>Evaporation depends upon the vapour present in surrounding area:</u> 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. (ii) <u>Observation:</u> The spirit in the normal room disappears quickly. If the vapour in atmosphere increases then the rate of evaporation decreases.	2x1=2	
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 ($T_1^\circ\text{C}$). (4) Take a few lead shots and place them in hot water of 100°C . measure the temperature of lead shots ($T_2^\circ\text{C}$). (5) Transfer the lead shots into calorimeter quickly (6) Note the final temperature ($T_3^\circ\text{C}$). (7) Measure mass of calorimeter along with water and lead shots (m_3). (8) Heat (Q) = $m.s.\Delta T$ According to the method of mixtures : Heat lost by the solid = Heat gained by calorimeter + Heat gained by water $(m_3-m_2).S_1.(T_2-T_3) = m_1.S_c.(T_3-T_1) + (m_2-m_1).S_w.(T_3-T_1)$ $S_l = \frac{[m_1 S_c + (m_2 - m_1) S_w] [T_3 - T_1]}{(m_3 - m_2) (T_2 - T_3)}$ This way we can find the specific heat of a solid. Take $S_w = 1 \text{ cal/gm } ^\circ\text{C}$ $S_c = 0.095 \text{ cal/gm } ^\circ\text{C}$	$8 \times \frac{1}{2}$	4
17.	(for concave mirror u taken with positive sign) (u) = -30cm ;(f) = -20cm;(R) = 2f = 40cm ; (v) = ? ;Formula : $\frac{1}{u} + \frac{1}{v} = \frac{1}{f}$ $\frac{1}{v} = \frac{1}{f} - \frac{1}{u} = \frac{1}{-20} - \frac{1}{-30} = \frac{-30+20}{600} = \frac{-10}{600} = \frac{-1}{60} \rightarrow v = -60 \text{ cm}$	$2 \times \frac{1}{2} = 1$	4
	(H_o) = 5 cm ; (H_i) = ? Magnification (m) = $\frac{H_i}{H_o} = -\frac{v}{u}$ $\rightarrow \frac{H_i}{5} = -\frac{-60}{-30} \rightarrow H_i = -10 \text{ cm}$ Negative sign represents that the image is inverted.	$2 \times \frac{1}{2} = 1$	
	<u>Properties of image:</u> Object is placed between “F” and “C” The image is (i) formed beyond “C” (at 60 cm distance) (ii) enlarged. (size of image is 10 cm.) (iii) inverted. (iv) real image	$4 \times \frac{1}{2} = 2$	
18.	Take a cylindrical transparent vessel of 1 lit. Place a coin at the bottom of the vessel. Pour water until you get the image of coin on the water surface. This is the phenomenon of total internal reflection.	$4 \times \frac{1}{2} = 2$	4
	When light passes from denser medium to rarer medium, If the angle of incidence is more than critical angle, then total internal reflection occurs.	1	
		1	

KEY SHEET - PART-B

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

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