PRAKASAM DISTRICT COMMON EXAMINATION BOARD

QUARTERLY EXAMINATIONS-OCTOBER-2015

GENERAL SCIENCE , Paper – I

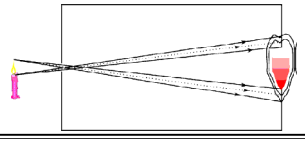
(Physical Sciences)

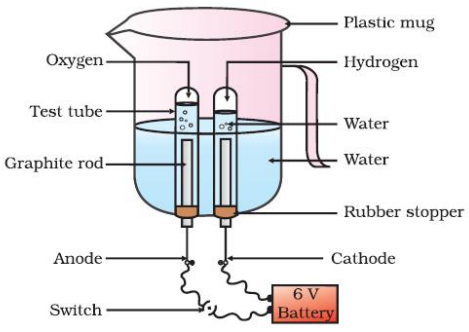
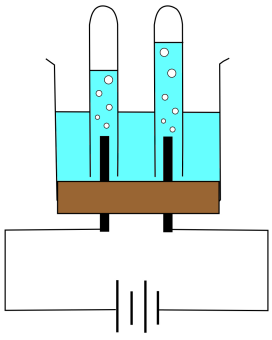
(English Version)

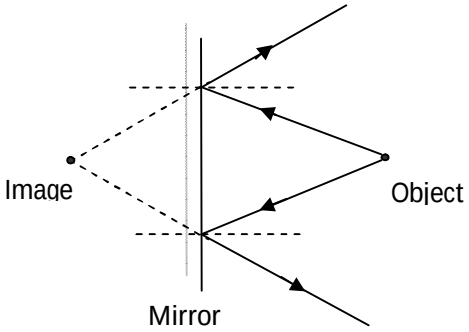
Class-10 - Principles of Evaluation - PART-A

Q.No	Points for Evaluation	Marks allotted	Total Marks
1.	The molecules in air touches the surface of the cold bottle. The molecules lose their kinetic energy. As a result the temperature of water molecules decrease. They condenses on the surface of the bottle as water droplets.	Any four points related $4 \times \frac{1}{2}$	2
2.	**(i)** We can get different sizes of images and at desired distances **(ii)** Spherical mirrors (concave) used in solar appliances. **(iii)** Concave mirrors are used by ENT doctors **(iv)** Spherical mirrors are used in wars in once to destroy the ships. **(v)** Concave mirrors are used to see celestial bodies. **(vi)** Convex mirrors are used as rear view mirrors. So, I appreciate the role of spherical mirrors in daily life.	Any four points related $4 \times \frac{1}{2}$	2
3.	Light rays from stars travel through many layers of earth's atmosphere The air layers are having different refractive index values. The rays bent many times and in random directions. As a result, the stars appear twinkling.	Any four points related $4 \times \frac{1}{2}$	2
4.	Refractive index of glass relative to water is $n_{gw} = \frac{n_g}{n_w} = \frac{9}{8}$ Refractive index of water relative to glass is $n_{wg} = \frac{n_w}{n_g} = \frac{8}{9}$ (or) Refractive index of glass relative to water $= \frac{9}{8}$ Refractive index of water relative to glass $= \frac{1}{\text{Refractive index of glass relative to water}} = \frac{1}{(9/8)} = \frac{8}{9}$ **Note :** Data, Formula, Substitution, Answer ---4 points	Any related model $4 \times \frac{1}{2}$	2
5.	(i) $Zn + 2\ AgNO_3 \rightarrow Zn(NO_3)_2 + 2\ Ag$ (ii) $H_2 + Cl_2 \rightarrow 2\ HCl$	2x1	2
6.	Some reactions of Oxidation : (i) Rusting of iron (ii) Tarnishing of silver (iii) Tarnishing of copper (iv) Burning of crackers (v) Spoiling of food items (vi) ……	Any two points 2x1	2
7.	Tooth enamel is the hardest substance in the body. Bacteria present in the mouth produce acids by degradation of food. If acid produced, the pH of the mouth is lower than 5.5. This acids attack on the enamel. So Tooth decay starts .	Any four points related $4 \times \frac{1}{2}$	2
8.	Calcium Sulphate hemi hydrate (or) ($CaSO_4 . \frac{1}{2} H_2O$) is called Plaster of Paris. **Uses of Plaster of Paris** : (i) Used as plaster for fractured bones. (ii) Used for making toys. (iii) Used as decoration material (iv) Used for making Statues. (v) Used for making ceiling to the roof in houses.	1 Any two uses $2 \times \frac{1}{2}$	2

NAGA MURTHY- 9441786635
Contact at : nagamurthysir@gmail.com
Visit at : nagamurthy.weebly.com

9.	Tungsten has more resistance . So it is used as filament in the bulb. **Note:** This question is from out of syllabus. 1 mark should award for all	*	1
10.	(i) For which incident angle, the angle of refraction is 90^o then the incident angle is called critical angle. (ii) If angle of refraction is 90^o, the incident angle is called Critical angle. (iii) If r = 90^o then I is called Critical angle in refraction. (iv) If the refracted ray travels along the interface, te incident angle is called Critical angle.	Any related one point 1x1	1
11.	Snell's law : n_1. Sin i = n_2. Sin r (or) $\frac{n_1}{n_2} = \frac{Sin\ r}{Sin\ i}$	1x1	1
12.	(i) The substances which prevent oxidation are called Antioxidants. (ii) The substances which reduce the process of oxidation are called antioxidants. (iii) The substances which slows down the process of oxidation are called antioxidants.	Any related one point 1x1	1
13.	$CaOCl_2$	1x1	1
14.	Coating with Zinc on Iron to protect it from rusting (or) Zinc plating on iron articles to protect them from rusting	Any related one point 1x1	1
15.	**<u>Melting :</u>** The process in which the solid phase changes to liquid phase at a constant temperature and pressure is called melting. **Ex:** If we provide heat to ice , it melts and converts to water in liquid state.	2x1=2	4
	<u>Latent heat of fusion :</u> The heat energy required to change solid to liquid at constant temperature is called latent heat of fusion. **Ex**: While ice turns to water, the temperature remains constant. The heat provided is utilized to change phase. The latent heat of fusion of ice is 80 cal/gm.	2x1=2	
16.	Distance of the object (u) = - 10cm (for concave mirror) Radius of curvature (R) = -8cm Focal length (f) = $\frac{R}{2} = \frac{-8}{2}$ = - 4cm Distance of the image (v) = ?	4 x 1	4
	Formula : $\frac{1}{u} + \frac{1}{v} = \frac{1}{f}$		
	$\frac{1}{v} = \frac{1}{f} - \frac{1}{u} = \frac{1}{-4} - \frac{1}{-10} = \frac{1}{-4} + \frac{1}{10} = \frac{-10+4}{40} = \frac{-6}{40} = \frac{-3}{20}$		
	$v = \frac{-20}{3}$ = - 6.6 cm (on the object side)		
17.	Two boxes so that one can be immersed through another. Place a dark, thick black paper at one end of the big barrel, and tie it with rubber band. Make a hole with pin at the centre of the paper. Tie a oiled paper which is semi transparent to the second small barrel. Immerse small barrel into big barrel and observe the flame of the candle. The light which comes from the top of the flame goes straight towards the bottom of the screen. Similarly the rays from the bottom of the flame goes straight towards the top of the screen. This leads to the formation of an inverted image.	3	4
		1	

18.	**Working of Optical fibres** : Total internal reflection is the basic principle behind working of optical fibre. An optical fibre is very thin fibre made of glass (or) plastic having radius about a micrometer (10^{-6}m). A bunch of such thin fibres form a light pipe. Because of the small radius of the fibre, light going into it makes a nearly glancing incidence on the wall. The angle of incidence is greater than the critical angle and hence total internal reflection takes place. The light is thus transmitted along the fibre.	Any related content 2	4
	Uses of Optical fibres: **(i)** The doctor uses optical fibres to see the inner parts of organs. **(ii)** These are used to transmit communication or telephone signals.	Any two uses 2x1	
19.	The reactions occur in the presence of sunlight is called photo chemical reactions.	2	4
	Ex: $2AgBr(s) \xrightarrow{\text{sun light}} 2Ag(s) + Br_2(g)$ $2AgCl(s) \xrightarrow{\text{sun light}} 2Ag(s) + Cl_2(g)$	2x 1	
20.	From this equation we came to know that (i) Cu and O_2 are the reactants (which participate in reaction) (ii) CuO is the product (which is formed due to reaction) (iii) This is chemical combination reaction (iv) 2 moles of copper reacts with 1 mole of oxygen and forms 2 moles of copper oxide. (v) This is oxidation reaction (Copper is oxidized) (vi) This is a reduction reaction (Oxygen is reduced) (vii) ……..	Any related four points 4x1	4
21.	Prepare solutions of glucose, alcohol. Connect two electrical wires to graphite rods separately in beaker. Connect ends of the wire to 6 volts battery through a bulb & a switch. Make a circuit.	1	4
	Now pour some dilute glucose solution in the beaker . Switch on the current. Glowing of bulb indicates the flow of electricity through the solution.	1	
	Repeat activity with alcohol solutions separately. In this case the bulb does not glow.	1	
	Acid solutions have ions. They can allow the flow of current. Hence we say, glucose and alcohol are not acids.	1	
22.	S.No / Chemical Name / Formula 1 / Sodium hydroxide / NaOH 2 / Baking Soda / $NaHCO_3$ 3 / Washing Soda / Na_2CO_3 4 / Bleaching Powder / $CaOCl_2$	4x1=4	4
23.	 (OR) 	Diagram 3 Any four parts $4x\frac{1}{2}=2$	5

24		Diagram 3 Any two parts 2	5

KEY SHEET - PART-B

S. No	Ans.	S. No	Ans.	S. No	Ans.
1	C	**11**	D	**21**	273
2	A or B	**12**	*	**22**	Pierre di Fermat (or) Fermat
3	B	**13**	B	**23**	Concave
4	D	**14**	B	**24**	3×10^8 m/s 3×10^5 Km/s 300000 Km/s
5	C	**15**	B	**25**	$\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$
6	D	**16**	B	**26**	D
7	A	**17**	A or D	**27**	A
8	A	**18**	B	**28**	B
9	B	**19**	C	**29**	E
10	C	**20**	B	**30**	C

Note : * means allot full marks.

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