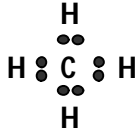<h1 style="text-align:center">TELANGANA – WARANGAL
DISTRICT COMMON EXAMINATION BOARD
SUMMATIVE ASSESSMENT-I - OCTOBER-2016
GENERAL SCIENCE , Paper – I</h1>
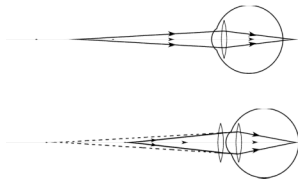
(Physical Sciences)

(Telugu Version)

Class-10 - Principles of Evaluation - PART-A &B

Q.No	Points for Evaluation	Marks allotted	Total Marks
1.	(i) Real image is formed when the light rays converged at a point. (ii) If object is placed beyond C, before a concave mirror. (iii) If object is placed at C, before a concave mirror. (iv) If object is placed between F and C, before a concave mirror. (v) If object is placed beyond C, of a convex lens. (vi) If object is placed at C, of a convex lens. (vii) If object is placed between F and C, of a convex lens. (viii) If object is placed at infinite distance before concave mirror (ix) If object is placed at infinite distance of a convex lens. **(any related point also suitable. Only one point is needed)**	1	1
2.	Types of lenses (i) Plano convex lens (ii) Plano concave lens (iii) Bi convex lens (iv) Bi concave lens (v) Convexo concave lens (vi) Concavo convex lens **(any related point also suitable. Only four points are needed)**	$4x\frac{1}{4}$	1
3.	Object should placed beyond C, before a concave mirror. **(or)** Object should be placed more than 2f distance, before a concave mirror. **(any related point also suitable. Only one point is needed)**	1	1
4.	Li, Na, K **(any related point also suitable. Only one point is needed)**	1	1
5.	List of materials : White light, Prism (or) List of materials : Tray, Water, Plane mirror, Torch light (or) List of materials : Light, CD **(any related point also suitable)**	1	1
6.	Acids form salt and water on reacting with bases or metal oxides. (or) Metal oxides are bases. (or) These are chemical double displacement reactions. **(any related point also suitable. Only one point is needed)**	1	1
7.	Bases : Washing soda , Blood Note: Given Lime juice as 2.2 . It has no clarity. **(any related point also suitable. Only two points are needed)**	2x	1

8.	(i) How can steel vessels form images? (ii) Image on a plate is different from the image on a bowl. Why? (iii) When we move some distance, why the size of image in vessel changes? (iv) Are steel vessels mirrors? **(any related points also suitable. Only two points are needed)**	2 x 1	2
9.	(i) Use sign convention while taking the values of R_1 and R_2 (ii) Use sign convention while taking the values of v and u **(any related points also suitable. Only two points are needed)**	1 1	2
10.	(i) Angle of incidence (ii) Angle of reflection (iii) Pole (iv) Centre of curvature (v) Focus (vi) Incident ray (vii) Reflected ray (viii) Principal axis **(any related points also suitable.)**	8 x ¼	2
11.	Pure acetic acid is a weak acid. The concentration of hydrogen ions in acetic acid is less. So it does not conduct electricity. **(any related points also suitable. Only two points are needed)**	2 x 1	2
12.	$C - 1s^2\ 2s^2\ 2p^2$ $N - 1s^2\ 2s^2\ 2p^3$ $Ne - 1s^2\ 2s^2\ 2p^6$ $Na - 1s^2\ 2s^2\ 2p^6\ 3s^1$ The element with outer shell completely filled with electrons-Ne **(any related points also suitable. Only two points are needed)**	First two 2 x ½ Next two 2 x ¼ ½	2
13.	 **(any related points also suitable. Only two points are needed)**	Frame 1 Dots 1	2

14A.	(a) Properties of image formed by convex mirror
	    Virtual, Erect, Diminished
	 (b) Properties of image formed by concave mirror
	    (i) When object is placed beyond C
	       Real, Inverted, Diminished
	    (ii) When object is placed at C
	       Real, Inverted, Same size
	    (iii) When object is placed between F and C
	       Real, Inverted, Enlarged
	    (iv) When object is placed between P and F
	       Virtual, Erect, Enlarged
	 Situations where the devices used : (Only two for each are needed)
	 Convex mirror is used : (i) Rear view mirrors in vehicles
	                       (ii) At corners of Ghat roads
	 Concave mirrors are used : (i) by Dentists
	                       (ii) in Solar cookers
	 (any related points also suitable.)
		1
		
		 ½
		
		 ½
		
		 ½
		
		 ½
		
		 ½
		
		 ½
			4

14B.	Eye lens can form a clear image on the retina when any object is placed beyond near point.	1	
	To correct the defect of hypermetropia, we need to use a lens which forms an image of an object beyond near point, when the object is between near point (H) and least distance of distinct vision (L).	1	
		1	
			4
	This is possible only when a double convex lens is used.		
	(any related points also suitable.)	1	
15A.	ADD SCORE SHOULD BE ALLOTTED Note: No focal lengths were given in the question. Asked to find the focal length. Is it possible to find focal length ? What we have to find ? Whether the value of focal length or the formula for focal length ? Or write the procedure ? **(any related points also suitable.)**	*	4
15B.	(i) Place a convex lens on the V-stand. Arrange a lightened candle such that the flame lies along the principal axis of the lens.	1	
	(ii) Adjust the screen at other side of the lens until we get the clear image of the flame on it.	1	
	(iii) Measure the distance between the optical centre of lens (centre of V-stand) and candle flame and denote it as 'u'. Measure the distance between the centre of the lens and image and denote it as 'v'.	1	4
	(iv) Calculate the focal length by using the formula $f = \dfrac{uv}{u+v}$	1	
	(OR)		
	(i) Place a convex lens on the V-stand. Place the lens towards a tree which is at infinite (far) distance.	1	
	(ii) Adjust the screen at other side until get the clear image of flame.	1	
	(iii) Measure the distance between lens and image.	1	
	(iv) This is the focal length of the given convex lens.	1	
	(any related points also suitable. No need of number of points.)		

16A.	Balanced chemical equations:		
	(i) $2\,Al + Fe_2O_3 \rightarrow Al_2O_3 + 2\,Fe$	1	
	(ii) $2\,NaCl + 2\,H_2O \rightarrow 2\,NaOH + Cl_2 + H_2$	1	
	The information from a balanced equation :		
	(i) A chemical equation gives information about reactants and products and their formulae.	Any two points 2x1	
	(ii) It gives the ratio of molecules of reactants and products.		4
	(iii) It gives the information about relative masses of reactants and products.		
	(iv) It gives the molar ratios of reactants and products.		
	(v) We can calculate the number of molecules or atoms of different substances by using Avagadro's number.		
	(vi) we can calculate the masses and volumes of gases liberated in the reaction.		
	(any related points also suitable.)		
16B.	Formation of Triple bond in a molecule:		
	Electronic configuration of Nitrogen(Z=7) is $1s^2 2s^2 2p^3$.	1	
	1s 2s $2p_x$ $2p_y$ $2p_z$		
	It has unpaired electrons in $2p_x$, $2p_y$, $2p_z$ orbitals.	1	
	The $2p_x$ orbitals which are having unpaired electrons in two nitrogen atoms overlap end-on-end to give rise to sigma bond. It is σ (p_x-p_x).		4
	Next the $2p_y$ and $2p_z$ orbitals in two nitrogen atoms overlap sideways (laterally) giving rise to two Pi bonds. They are $\pi(p_x$-$p_x)$ and $\pi(p_z$ - $p_z)$	1	
	Thus in Nitrogen molecule there are formed one σ bond and two π bonds. It is an example for triple bond.	1	
	(OR)		
	Formation of Triple bond in a molecule:		
	Electronic configuration of Nitrogen(Z=7) is $1s^2 2s^2 2p^3$.	1	
	The valence electrons are 5. It needs 3 electrons for its stability.	1	
	When two Nitrogen atoms come together, they can contribute three electrons each and share equally the three pairs of electrons. Thus Triple bond is formed in Nitrogen molecule.	1	
		1	
	(any related points also suitable.)		
17A.	**Uses of Baking Soda ($NaHCO_3$):**		
	i) Baking soda is used in the preparation of bread and cake.	Any two points 2x1	
	ii) Baking soda is also an ingredient in antacids.		
	iii) It is also used in soda-acid fire extinguishers		
	iv) It acts as mild antiseptic.		
	Uses of Washing soda (Na_2CO_3) :		4
	i) Sodium carbonate is used in glass, soap and paper industries.	Any two points 2x1	
	ii) It is used in the manufacture of sodium compounds like borax.		
	iii) Washing soda is used as a cleaning agent .		
	iv) It is used for removing permanent hardness of water.		
	(any related points also suitable.)		

17B.	Importance of P^H in daily life: (i) Living organisms can survive only in a narrow range of pH change. Acid rains lowers the pH of the river water, the survival of aquatic life in such rivers becomes difficult. (ii) Tooth decay starts when the pH of the mouth is lower than 5.5. When the pH in the mouth is below 5.5, Bacteria present in the mouth produce acids by degradation of sugar and food particles remaining in the mouth. (iii) Our stomach produces hydrochloric acid. It helps in the digestion of food without harming the stomach. During indigestion the stomach produces too much acid and this causes pain and irritation. To get rid of this pain, people use bases called antacids. (iv) Plants require a specific pH range for their healthy growth. **(any related points also suitable. Only four points are needed.)**	4x1	4

PART - B

S. No	Ans.	S. No	Ans.
1	B	6	C
2	B	7	D
3	*	8	B
4	C	9	C
5	A	10	D

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

For Bit No:3 : Violet has Least wavelength in VIBGYOR.