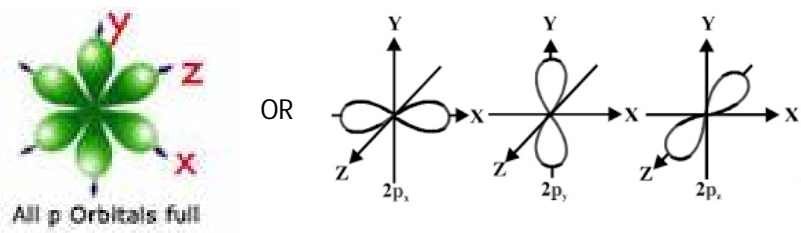# ANDHRA PRADESH COMMON EXAMINATIONS
SUMMATIVE ASSESSMENT-II - JANUARY-2017
GENERAL SCIENCE , Paper – I
(Physical Sciences)
(English Version)

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

Q.No	Points for Evaluation	Marks allotted	Total Marks
1.	All the parallel rays incident on concave mirror converges to a point, So it is called as a convergent mirror. **(any related point also suitable. Only one point is needed)**	1	1
2.	**Note :** sp^3 is given in the question instead of $2p^3$ Also the given arrangement is wrong in the question If it is $2p^3$ the answer is N (Z=7) $1s^2$ $2s^2$ $2p^3$ [↑↓] [↑↓] [↑↓│↑│ │] **Add score** **(any related point also suitable. Only one point is needed)**	*	1
3.	We connect an electric fuse to the household circuit. When overload occurs, it melts due to heat and current stopped. **(any related point also suitable. Only two points are needed)**	2x½	1
4.	180° **(any related point also suitable. Only one point is needed)**	1	1
5.	(i) The phenomenon is dispersion (ii) The seven colours : Violet, Indigo, Blue, Green, Yellow, Orange, Red **(any related point also suitable. Only two points are needed)**	1 1	2
6.	(i) Exothermic (ii) Exothermic (iii) Endothermic (iv) Exothermic **(any related points also suitable. Only four points are needed)**	4x½	2
7.	The inner surface of glass is generally concave shape. The light rays from lemon diverges through concave surface. So lemon appears big in size. **(any related point also suitable. Only two points are needed)**	1 1	2
8.	(i) In periods, the atomic radius decreases from left to right. (ii) Even the atomic number increases, the number of orbits unchanged. As the charge of nucleus increases, the size of atom decreases **(any related points also suitable. Only two points are needed)**	1 1	2

9.	Focal length (f) = 20cm Object distance (u) = -50cm Image distance (v) = ?	1	
	Lens formula : $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$		2
	➔ $\frac{1}{v} = \frac{1}{f} + \frac{1}{u} = \frac{1}{20} + \frac{1}{-50} = \frac{1}{20} - \frac{1}{50} = \frac{50-20}{20 \, X \, 50} = \frac{30}{1000} = \frac{3}{100}$		
	➔ $\frac{1}{v} = \frac{100}{3}$ ➔ v = 33.33 cm		1
	➔ Image is formed between F and C		
	It is real, inverted and diminished. **(any related point also suitable. Only two points are needed)**		
10A.	(i) Body temperature is more than mercury in thermometer If we keep thermometer in mouth, the heat transferred from body to thermometer until thermal equilibrium takes place. The reading in thermometer represents the body temperature. So temperature is a measure of thermal equilibrium.	4x½	4
	(ii) m_1 = 100 gm T_1 = 60°C m_2 = 150 gm T_2 = 20°C Final temperature as per Method of mixtures (T) = $\frac{m_1 T_1 + m_2 T_2}{m_1 + m_2}$ $= \frac{100 \, X \, 60 + 150 \, X \, 20}{100 + 150} = \frac{6000 + 3000}{250} = \frac{9000}{250}$ $= 36°C$	4x½	
	(any related points also suitable. Only 4 points are needed)		
	(OR)		
10B.			

(Bi) Convex Lens		(Bi) Concave Lens			
1	Thick at middle	1	Thin at middle	4 x 1	4
2	Thin at edges	2	Thick at edges		
3	Forms images in different sizes	3	Always forms diminished images		
4	It can form real and virtual images.	4	It always forms virtual images.		
5	It can form erect and inverted images.	5	It always forms erect images		
6	In general it is convergent lens	6	In general it is divergent lens		
7		7			
8	'f' is positive	8	'f" is negative		

(any related points also suitable. Only 4 points are needed)

11A.	(i) Electron configuration of B (Z=5) is $1s^2 \, 2s^1 \, 2p^2$. (excited state) (ii) Due to hybridization of 2s and 2p orbitals, three identical sp^2-hybrid orbitals are formed in a planar triangular shape. (iii) Fluorine has one 2p orbital with single electron. (iv) The three sp^2-hybrid orbitals in boron forms bonds with each of p-orbitals in three Fluorine atoms. Thus BF_3 is formed with planar triangular shape. **(any related points also suitable. No need of number of points)**	4x1	4

	(OR)			
11B.	(i) A and B (ii) B, C and D (iii) Chlorine (iv) E **(any related point also suitable. Only four points are needed)**	4x1	4	
12A.	Fix a white paper on a drawing board Place a prism on the paper so that the triangular shape touches the paper. Draw the boundary line. Name the vertices as P, Q and R. Measure the angle of the prism 'A' . Fix two pins on the line which was drawn with an angle to 'PQ'. Observe the images at 'PR' side and fix another two pins such that four pins lie along a straight line. Remove the prism. Extend the incident ray and emergent ray. The angle between them is called angle of deviation (d). Find angle of deviations for different angles of incidence. The minimum value can be taken as angle of min. deviation (D). The refractive index of prism is calculated by n $== \frac{Sin(\frac{A+D}{2})}{Sin(\frac{A}{2})}$ **(any related matter also suitable. No need of number of points)**	1 1 1 1	4	
	(OR)			
12B.	(i) Connect battery with one cell, plug key, iron spoke (for resistance), and ammeter in series combination. Attach volt meter at the ends of the resistor in parallel combination. (ii) Switch on and allow the flow of current.Take the readings of ammeter 'I' and the reading in the volt meter as 'V'. Find $\frac{V}{I}$. (iii) Note down the values in the table. | S.No	Potential difference (V)	Flow of current (I)	$\frac{V}{I}$
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1			
2			| (iv) Repeat the same with battery having 2 or 3 cells. In each case find the value of $\frac{V}{I}$. We get $\frac{V}{I}$, a constant value. So $\frac{V}{I}$ = constant V α I **(any related matter also suitable. No need of number of points)**	1 1 1 1	4	
13A.	(i) Four covalent bonds are present in Methane molecule. H H C H H **(any diagram related is sufficient. Meaningful diagram is enough. 'x' mark or '*' mark instead of '.' Also be sufficient.)**	1 3	4	

	(OR) This question is not for testing drawing skill.		
13B.	(i) s-orbitals has spherical shape	½	
	(ii) p-orbitals has dumb bell shape	½	
		3	4
	(any diagram related is sufficient. Meaningful diagram is enough.)		

Section - IV

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

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