Strictly Confidential- (For Internal and Restricted Use Only) **Secondary School Examination**
SUMMATIVE ASSESSMENT - II
March 2017

Marking Scheme – Science (for Blind Candidates) 31/B

1. The Marking Scheme provides general guidelines to reduce subjectivity in the marking. It carries only suggested value points for the answer. These are only guidelines and do not constitute the complete answer. Any other individual response with suitable justification should also be accepted even if there is no reference to the text.

2. Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one's own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed.

3. If a question has parts, please award marks in the right hand side for each part. Marks awarded for different parts of the question should then be totalled up and written in the left hand margin.

4. If a question does not have any parts, marks be awarded in the left hand side margin.

5. If a candidate has attempted an extra question, marks obtained in the question attempted first should be retained and the other answer should be scored out.

6. Wherever only two/three of a 'given' number of examples/factors/points are expected only the first two/three or expected number should be read. The rest are irrelevant and should not be examined.

7. There should be no effort at 'moderation' of the marks by the evaluating teachers. The actual total marks obtained by the candidate may be of no concern of the evaluators.

8. All the Head Examiners / Examiners are instructed that while evaluating the answer scripts, if the answer is found to be totally incorrect, the (X) should be marked on the incorrect answer and awarded '0' marks.

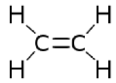
9. ½ mark may be deducted if a candidate either does not write units or writes wrong units in the final answer of a numerical problem.

10. A full scale of mark 0 to 100 has to be used. Please do not hesitate to award full marks if the answer deserves it.

11. As per orders of the Hon'ble Supreme Court the candidates would now be permitted to obtain photocopy of the Answer Book on request on payment of the prescribed fee. All Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points given in the marking scheme.

MARKING SCHEME **Code No. 31/B**

CLASS X – BLIND

	Expected Answer/ Value point	Marks	Total
	SECTION – A		
Q 1.	Propane, C_3H_8	½ , ½	1
Q2.	1) To produce sperms 2) To produce male sex hormone/ Testosterone	½ , ½	1
Q3.	12.5 x 10 x 100J or 12500J	1	1
Q4.	• Infinity • Convex Mirror • As rear view mirrors of vehicles	1 ½ ½	2
Q5.	• It does not evaporate. • Provide moisture for vegetation. • Spreads out to recharge wells. • Remains protected from contamination. (any other four)	4 x ½	2
Q6.	• This movement was started by the women of a village in Garhwal region of Uttarakhand, by hugging trees to prevent them from being cut by the workers of a contractor. Hence the name Chipko (hugging) Andolan. • Advantages- Government was forced to rethink about their priority in the use of forest produce. It improved the quality of soil and water Protected the environment by improving the quality of air. (any two)	1 ½ , ½	3
Q7.	• X is C_2H_5OH • Y is H_2 gas • $C_2H_5OH + 2Na \rightarrow 2\ C_2H_5ONa + H_2\uparrow$ • Ethene • $H_2C=CH_2$ or 	½ ½ 1 ½ ½	3
Q8.	a) Esters b) $CH_3COOH + C_2H_5OH \rightarrow CH_3COOC_2H_5$ c) Ester d) $CH_3COOC_2H_5 + NaOH \rightarrow CH_3COONa + C_2H_5OH$/ Sodium ethanoate is formed Saponification Reaction	½ 1 ½ ½ ½	3

Q9.	i) Atomic Number- 17 $\rightarrow$(2, 8, 7) Seven electrons in the outermost shell—Hence group No-17, As there are three shells, hence Period No. is 3. ii) Valency of an atom is equal to 8 minus no of electrons in the outer most orbit if it is more than four. In case the number of electrons is four or less than the valency is same as the number of valence electrons.	1 ½ ½ ½ ½	3
Q10.	a) Third group means – Three shells First group means – one valence electron Therefore, Electronic configuration of X is – 2, 8, 1 Hence atomic number is 11 b) Since it is of first group, it is a Metal c) Y (16) = 2, 8,6 Its valency= 8-6 = 2 $\therefore$ Formula of the compound formed will be X_2Y	½ ½ ½ ½ 1	3
Q11.	• Reproduction : It is a biological process by which living organisms produce similar offsprings. • Reproduction involves DNA Copying . During this process some inaccuracies can occur which may give rise to variations. Sexual reproduction also gives rise to variations as two parents are involved. • The variations give survival advantage to the organisms and thus help in providing stability to the population of the species.	1 1 1	3
Q12.	<table><tr><td>Fission</td><td>Fragmentation</td></tr><tr><td>Found in unicellular organisms</td><td>Found in multicellular organisms with simple body design</td></tr><tr><td>Parent splits into two or more organisms.</td><td>The filament breaks into two or more pieces upon maturation. These pieces then grow into new individuals</td></tr><tr><td>eg: Amoeba/ Plasmodium/ Leishmania (any one)</td><td>eg : Spirogyra</td></tr></table>	1 1 ½ , ½	3
Q13	• Vegetative Propagation- Process of asexual reproduction where any vegetative part of a plant (root, stem, leaf) can give rise to a new plant • Advantages: Such plants can bear flower and fruits earlier than produced from seeds. Propagation of plants which have lost the capacity to produce viable seeds (or any other advantage)	1 1 1	3

Q14.	• Fossils are formed when the body parts of the dead organisms do not decompose completely and are caught up in the mud and eventually harden to retain their impression. • Two methods for determining age of the fossils: i)Relative method/ Fossils found closer to the surface are supposed to be more recent than those found in deeper layers ii)Carbon Dating/ Detecting the ratio of different isotopes of an element in the fossil material • Importance of studying fossils: i) Help us in knowing about the species which are no longer alive. ii) Provide missing links between the groups of organisms.	1 ½ ½ ½ ½	3
Q15.	Mendel conducted a dihybrid cross and observed that though he started with two types of parents, he obtained four types of individuals in F_2. The appearance of new recombination in F_2 generations along with parental type characters show that traits are inherited independently of each other.	1 1 1	3
Q16.	a) Concave mirror(m = -1 means a real image and only a concave mirror forms a real image) b) u = 40 cm. As m = -1 means $\frac{v}{u}$ = 1 or u = v = 40 cm (object at C) c) As Radius of Curvature of the mirror is 40cm, its focal length = 40/2 = 20 cm In this case object distance will be (40 – 10)cm = 30cm.ie object will be between its F and Pole. Hence the image will be beyond C. (Solution by calculation is also permissible)	1 1 1	3
Q17.	• As blue color has shorter wavelength as compared to that of red color, the large number of particles spread in the air scatter the blue color more strongly hence sky appears blue. • At sunset the sunrays travel through a large atmospheric distance, and since $\lambda b < \lambda r$, most of the blue light is scattered and only red light reaches our eyes.	1 ½ 1 ½	3
Q18.	a) Some items in nature are decomposed by bacteria or other natural processes, Such items are called Biodegradable . b) Food items like samosa, bread etc/ paper plates/ or any other eg of biodegradable waste Plastic bottles/ Plastic wrappers/ or any other eg of non biodegradable waste c) Reduce and Reuse of non Biodegradable waste	1 ½ ½ ½ , ½	3

Q19.	• Soaps are sodium/ potassium salts of long chain carboxylic acids whereas detergents are ammonium/ sulphonate salts of long chain carboxylic acids • Cleansing action of soap: The ionic end of soap dissolves in water while the carbon chain dissolves in oil. The soap molecules thus form structure called micelles, where one end of the molecule is towards the oil droplet, while the ionic end faces outside. This forms an emulsion in water. The soap micelles thus helps in dissolving the dust in water and we can wash our clothes clean. • Soaps do not form lather with hard water because of reaction of soap with Ca/ Mg ions present in hard water which form insoluble scum. • Detergents should be discouraged because 1) They are non biodegradable 2) Pollute water bodies (any other)	1 2 1 ½ ½	5
Q20.	Placenta is a special disc like tissue embedded in mother's uterine wall. It contains villi on the embryo side of the tissue. On the mother's side are blood spaces which surround the villi. The villi increase the surface area for effective exchange. Role of placenta: • Facilitates the passage of glucose and O2 to pass from mother to the embryo. • The wastes generated by the foetus are removed by transferring them into mother's blood.	1 1 1 1 1	5
Q21.	• Speciation : Formation of new species from pre- existing ones. • Factors: 1) Natural Selection 2)Genetic Drift 3)Mutation 4)Geographical Isolation • Geographical Isolation cannot be a major factor in speciation of self pollinating plants. • Because physical barrier cannot be created in self pollinating plants.	1 ½ x 4 1 1	5
Q22.	i) Pole – The centre of the reflecting surface of a spherical mirror. ii) Centre of curvature- Centre of the sphere of which mirror forms a part. iii) Principal Axis- An imaginary line passing through the pole and centre of curvature of a spherical mirror. iv) Focal Length- The distance of principal focus from the pole is called focal length.	½ ½ ½ ½	
	b) $u = -30$ cm, $f = -20$ cm, $h = 5$ cm		

	Mirror formula : $\frac{1}{v}+\frac{1}{u}=\frac{1}{f}$		½	
	Or $v=\frac{uf}{u-f}=\frac{-30\text{ cm}\times(-20\text{ cm})}{-30\text{ cm}-(-20\text{ cm})}$ $=-60$ cm		1 ½	
	$\frac{h'}{h}=\frac{-v}{u}\Rightarrow h'=h\times\frac{-v}{u}$		½	
	Or, $h'=5\text{ cm}\times\frac{-(-60\text{ cm})}{-30\text{ cm}}$			
	$=-10$ cm		½	5
Q23.	a) • Laws of refraction: i) The incident ray, the refracted ray and the normal to the surface at the point of incidence are in the same plane. ii) The ratio between the sine of angle of incidence (∠i) and corresponding angle of refraction (∠r) is a constant for a pair of media. ie $\frac{\sin i}{\sin r}$ = η[a constant called refractive index]		1 x 2	
	• Absolute Refractive Index = $\frac{\text{Speed of light in vacuum}}{\text{Speed of light in } \textit{the} \text{ medium}}$		1	
	b) $n_g=\frac{c}{v_g}$ *Or* $c=n_g\times v_g$ $=3/2\times(2\times10^8\text{ m/s})$ $=3\times10^8$ m/s		1	
	$\therefore\ v_\mu=\frac{c}{n_\mu}=\frac{3\times10^8\text{ m/s}}{4/3}=\frac{9}{4}\times10^8$ m/s		1	5
Q24.	a) i) Cornea- Refraction of light rays entering the eye. ii)Pupil- Regulates and controls the amount of light entering the eye. iii)Eye Lens- forms an inverted and real image of the object on retina. iv)Retina- generates electric signals upto illumination by the light from the image of the object. These signals are sent to the brain via optic nerves.		½ x 4	
	b) Defect- Hypermetropia		1	
	Causes- i) 'f' of the eye lens is too long ii) The eye ball becomes too small.		½ x 2	5
	Power = $\frac{1}{\text{f in metre}}=\frac{1}{+2\text{m}}=+0.5$D		1	
	SECTION – B			
	25) A	26) D	27) C	
	28) D	29) B	30) B	

	31) A	32) C	33)D	1 X 9	9
Q34.	• Brisk effervescence/ Evolution of colorless odorless gas • Sodium Acetate • CH_3COONa			1 ½ ½	2
Q35.	1) Fixing slide on the stage. 2) Adjustment of the reflector to illuminate the slide. 3) Coarse adjustment. 4) Fine adjustment.			½ x 4	2
Q36.	A) Towards the lens B) Size of the image decreases C) Intensity of the image increases.			1 ½ ½	2