

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

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

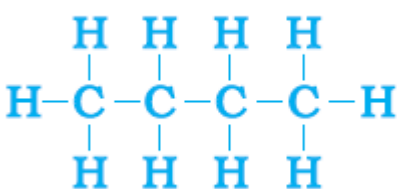
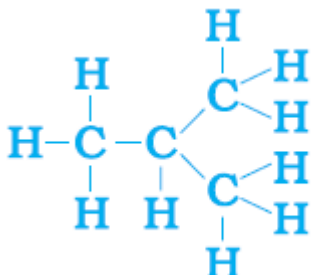
1. The Marking Scheme provides general guidelines to reduce subjectivity in the marking. It carries only suggested value points for the answer. These are only guidelines and do not constitute the complete answer. Any other individual response with suitable justification should also be accepted even if 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. $\frac{1}{2}$ 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.

Code No. 31/B

Blind Candidates – 31/B

Q8.	A : C ₂ H ₅ OH / Ethanol B : CH ₃ COOH / Ethanoic Acid X : H ₂ <div><div>CH₃—CH₂OH</div><div>acidified K₂Cr₂O₇ + Heat</div><div>CH₃COOH</div></div> 2CH ₃ COOH + 2Na → 2CH ₃ COONa + H ₂	<div>½ x 3</div> <div>½ 1</div>	3		
Q9.	<ul style="list-style-type: none">To make the study of elements systematic and easierAtomic numberModern periodic law“Properties of elements are a periodic function of their atomic number.”18 Groups, 7 Periods.	<div>½</div> <div>½</div> <div>½</div> <div>½</div> <div>½ , ½</div>	3		
Q10.	a) Na / Sodium, 2,8,1 b) Group number- 1, Period number- 3 c) Sodium hydroxide, NaOH	<div>½ , ½</div> <div>½ , ½</div> <div>½ , ½</div>	3		
Q11.	<div>• Transfer of pollen grains from anther to the stigma of a flower.</div> <table><tr><td><div>• Self Pollination</div><div>1) Transfer of pollen grain to the stigma of the same flower or another flower of the same plant</div><div>2) Can occur only in bisexual flowers</div></td><td><div>• Cross Pollination</div><div>1) Transfer of pollen grain to the stigma of another flower present on another plant of the same species</div><div>2) Can occur in unisexual as well as bisexual flowers</div></td></tr></table>	<div>• Self Pollination</div> <div>1) Transfer of pollen grain to the stigma of the same flower or another flower of the same plant</div> <div>2) Can occur only in bisexual flowers</div>	<div>• Cross Pollination</div> <div>1) Transfer of pollen grain to the stigma of another flower present on another plant of the same species</div> <div>2) Can occur in unisexual as well as bisexual flowers</div>	<div>1</div> <div>1</div> <div>1</div>	3
<div>• Self Pollination</div> <div>1) Transfer of pollen grain to the stigma of the same flower or another flower of the same plant</div> <div>2) Can occur only in bisexual flowers</div>	<div>• Cross Pollination</div> <div>1) Transfer of pollen grain to the stigma of another flower present on another plant of the same species</div> <div>2) Can occur in unisexual as well as bisexual flowers</div>				
Q12.	<ul style="list-style-type: none">Main steps of sexual reproduction;<div>1) Formation of male and female gametes</div><div>2) Meeting together of male and female gametes.</div><div>3) Fusion of the two gametes to form a zygote.</div><div>4) Development of zygote to form a new individual.</div>Two advantages:<div>1) Brings about variation useful for the survival of species over time.</div><div>2) Brings stability of population in a species.</div>	<div>½ x 4</div> <div>½</div> <div>½</div>	3		
Q13	i) Pistil: 1) Receives the pollen grain 2) Carries the male germ cell to the ovary 3) Development of ovary and ovule into fruit and seeds <div>(Any two)</div> ii) Stamen: Produces pollen grains	<div>1 x 2</div> <div>1</div>	3		
Q14.	<ul style="list-style-type: none">When a cross was made between a tall pea plant with round seeds and a short pea plant with wrinkled seeds, the F1 progeny plants were all tall with round seeds; this indicates that tallness and round seeds are the dominant traits.When F1 plants were self pollinated, the F2 progeny consisted of some tall plants with round seeds and some short plants with wrinkled seeds	<div>1</div>			

	<p>which are the parental traits.</p> <ul style="list-style-type: none">There were also some new combinations like tall plants with wrinkled seeds and short plants with round seedsThus it may be concluded that tall / short traits and round seed / wrinkled seeds traits have been inherited independently. <p style="text-align: center;">OR</p> <p>A flow chart depicting the same</p> <p>Note: Any other pair of contrasting characters can also be taken</p>	1 1/2 1/2	3				
Q15.	<ul style="list-style-type: none">Homologous organs: Organs having similar origin and basic structural plan but are modified to perform different functions.Analogous organs: Organs having different origin and basic structural plan but are modified to perform a common function.Evidences:<ul style="list-style-type: none">The more characteristics any two species have in common, more closely they are related/ having a recent ancestor.Helps to identify an evolutionary relationship between apparently different species.	1 1 1/2 1/2	3				
Q16.	<table><tr><th>Real Image</th><th>Virtual Image</th></tr><tr><td>1) Can be obtained on a screen 2) Image is inverted 3) Rays of light starting from a common point actually converge after reflection/ refraction.</td><td>1) Cannot be obtained on a screen 2) Image is erect 3) Rays of light starting from a common point appear to diverge from a point after reflection/ refraction. (any two)</td></tr></table>	Real Image	Virtual Image	1) Can be obtained on a screen 2) Image is inverted 3) Rays of light starting from a common point actually converge after reflection/ refraction.	1) Cannot be obtained on a screen 2) Image is erect 3) Rays of light starting from a common point appear to diverge from a point after reflection/ refraction. (any two)	1 x 2	
Real Image	Virtual Image						
1) Can be obtained on a screen 2) Image is inverted 3) Rays of light starting from a common point actually converge after reflection/ refraction.	1) Cannot be obtained on a screen 2) Image is erect 3) Rays of light starting from a common point appear to diverge from a point after reflection/ refraction. (any two)						
	<ul style="list-style-type: none">Characteristics of image -<ul style="list-style-type: none">RealInvertedMagnified(any two)	1/2 x 2	3				
Q17.	<p>i) Myopia Causes: 1) Elongation of the eye ball 2)Excessive curvature of the eye lens</p> <p>ii) Nature: Concave Lens Focal length: – 200 cm</p>	1 1/2 1/2 1/2 1/2	3				
Q18.	<ul style="list-style-type: none">Biodegradable and non-biodegradableSaves time and energyPraveen is sincere, aware, responsible (or any other)	1/2 , 1/2 1/2 , 1/2 1/2 , 1/2	3				
Q19.	<p>a) Isomers are compounds having same molecular formula but different structural formula.</p>	1					

	<div>  </div> <div>and</div> <div>  </div> <div> b) Oxidation $\text{CH}_3-\text{CH}_2\text{OH} \xrightarrow{\text{Alkaline KMnO}_4 + \text{Heat}} \text{CH}_3\text{COOH}$ </div> <div> c) Ethene Conc. H₂SO₄ acts as the dehydrating agent. </div>	1					
		1					
		1/2					
		1/2					
		1/2					
		1/2	5				
Q20.	a) Functions: <div> i) Ovary- Production of female gamete /egg Production of female sex hormone/ oestrogen </div> <div> ii) Uterus- Implantation of zygote/ fertilised egg Nourishment of the developing embryo </div> <div> iii) Oviduct – Site of fertilization Transfer of female gamete from ovary. </div> b) The embryo gets its nourishment inside the mother’s body with the help of a special tissue called placenta. This is a disc embedded in the uterine wall which contains villi on the embryo side of the tissue and blood spaces surrounding the villi on the mother’s side. It provides a large surface area for glucose and oxygen to pass from the mother to the embryo.	1/2 , 1/2 1/2 , 1/2 1/2 , 1/2 1/2 1 1/2	5				
Q21.	a) 23 Pairs/ 46 chromosomes Male: Two types - X, Y Female: One type - X, X	1 1/2 1/2					
	<table> <tr> <th>b) Acquired Trait</th> <th>Inherited Trait</th> </tr> <tr> <td>Changes or characters in the non-reproductive tissues cannot be passed on to the DNA of the germ cells/ next generation.</td> <td>Changes or characters in the reproductive tissues only can be passed on to the DNA of the germ cells/ next generation.</td> </tr> </table>	b) Acquired Trait	Inherited Trait	Changes or characters in the non-reproductive tissues cannot be passed on to the DNA of the germ cells/ next generation.	Changes or characters in the reproductive tissues only can be passed on to the DNA of the germ cells/ next generation.	1 , 1	
b) Acquired Trait	Inherited Trait						
Changes or characters in the non-reproductive tissues cannot be passed on to the DNA of the germ cells/ next generation.	Changes or characters in the reproductive tissues only can be passed on to the DNA of the germ cells/ next generation.						
	Reason: Change in non-reproductive tissues cannot be passed on to the DNA of the germ cells.	1	5				

Q22.	<p>a) $h_o = 2 \text{ cm}, \quad f = 16 \text{ cm}, \quad u = -24 \text{ cm}$</p> $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$ $\frac{1}{v} - \frac{1}{(-24)} = \frac{1}{16}$ $v = 48 \text{ cm}$ $m = \frac{h_i}{h_o} = \frac{v}{u}$ $h_i = \frac{48}{-24} \times 2 = -4 \text{ cm}$ <p>b) $u = -32 \text{ cm}$ It means that the object is at 2F, hence the image is also at 2F \therefore Size of object = Size of image = 2 cm.</p>	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 1	5
Q23.	<p>(i) The object is always placed to the left of the mirror. This implies that the light from the object falls on the mirror from the left-hand side</p> <p>(ii) All distances parallel to the principal axis are measured from the pole of the mirror.</p> <p>(iii) All the distances measured to the right of the origin (along + x-axis) are taken as positive, while those measured to the left of the origin (along - x-axis) are taken as negative.</p> <p>(iv) Distances measured perpendicular to and above the principal axis (along + y-axis) are taken as positive.</p> <p>(v) Distances measured perpendicular to and below the principal axis (along -y-axis) are taken as negative.</p>		
	(any four)	$\frac{1}{2} \times 4$	
	• Convex mirror	$\frac{1}{2}$	
	$f = \frac{r}{2} = 15 \text{ cm}$	$\frac{1}{2}$	
	• $u = -30 \text{ cm}, \quad f = -20 \text{ cm} \quad v = ?$		
	$\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$	$\frac{1}{2}$	
	$\frac{1}{v} + \frac{1}{-30} = \frac{1}{-20}$	1	
	$v = -60 \text{ cm}$	$\frac{1}{2}$	5
Q24.	<p>a) • The angle through which the incident ray deviates from its path after passing through glass prism/ the angle between the extended incident ray and the emergent rays</p> <p>• Different colours of light bend through different angles with respect to the incident ray/ have different refractive index/ have different speeds.</p> <p>• By placing a second identical prism in inverted position with respect to first prism</p>	1 1 1	

	b) • A rainbow is a natural spectrum appearing in the sky after a rain shower. • Essential conditions - 1) Presence of tiny water droplets in atmosphere. 2) Presence of Sun behind the observer.			1 $\frac{1}{2}, \frac{1}{2}$	5
	SECTION – B				
	25) b	26) b	27) c		
	28) a	29) d	30) c		
	31) d	32) Give credit to all	33) a	1×9	9
Q34.	Vegetable oil, NaOH solution With the help of litmus: The reaction mixture will turn red litmus blue.			$\frac{1}{2}, \frac{1}{2}$ 1	2
Q35.	Binary Fission First stage: Elongation of the nucleus Final stage: Formation of two daughter cells each having a nucleus.			1 $\frac{1}{2}, \frac{1}{2}$	2
Q36.	i) Away from the lens. ii) Size of the image will increase. Intensity will decrease.			1 $\frac{1}{2}$ $\frac{1}{2}$	2