

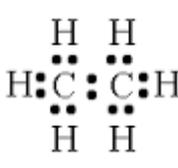
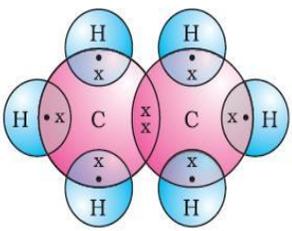
**Strictly Confidential- (For Internal and Restricted Use Only) Secondary School Examination**  
**SUMMATIVE ASSESSMENT - II**  
**March 2015**

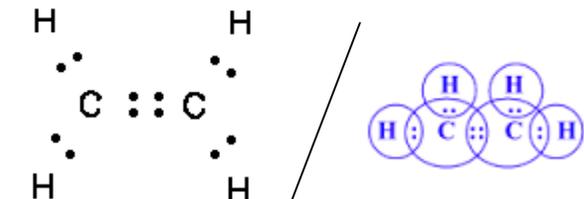
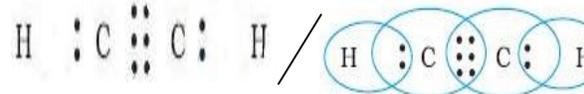
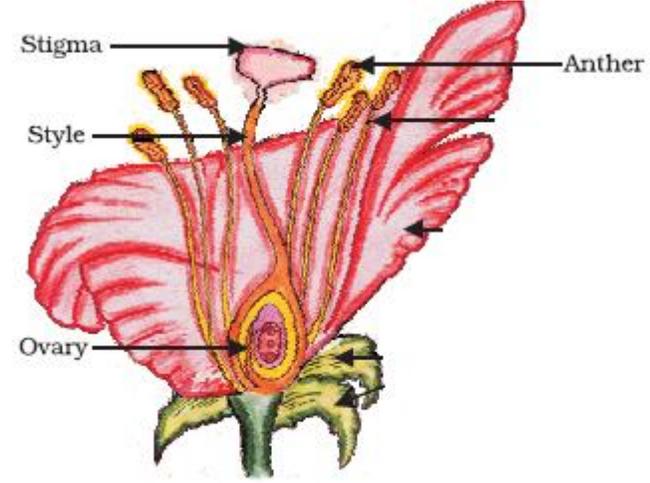
**Marking Scheme – Science (Foreign) 31/2/2**

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  
CLASS X – FOREIGN**

Code No. 31/2/2

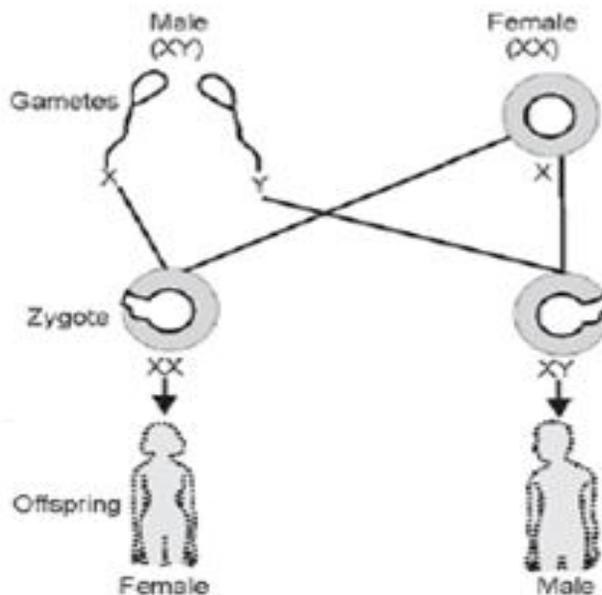
Expected Answer/ Value point <b>SECTION – A</b>		Marks	Total
Q1.	(a) Alcohol (b) Ketone	½ ½	1
Q2.	Sepals / calyx Petals / Corolla Thalamus <span style="float: right;">(any two)</span>	½ ½	1
Q3.	Chlorofluorocarbons (no marks if only CFCs mentioned)	1	1
Q4.	<ul style="list-style-type: none"> <li>• Planets, being closer to earth, are seen as extended sources</li> </ul> If we consider a planet as a collection of large number of point-sized sources of light, the total variation in the amount of light entering our eye due to gradual changing of refractive index of the atmosphere from all individual, point-sized sources will average out to zero. This nullifies the twinkling effect.	1  1	  2
Q5.	1. Loss of biodiversity 2. Varied needs of the local people can no longer be met. 3. Degradation of soil or any other <span style="float: right;">(any two)</span>	1x 2	2
Q6.	1. Social problems 2. Economic problems 3. Environmental problems Solution: Adequate rehabilitation / compensation to the displaced persons / afforestation	½ x 3  ½	  2
Q7.	<ul style="list-style-type: none"> <li>• As all the members of a series have the same functional group, similar structure and same general formula. <span style="float: right;">(any two)</span></li> <li>• CH<sub>3</sub>OH , C<sub>2</sub>H<sub>5</sub>OH</li> <li>• The physical properties are determined by alkyl group / hydrocarbon part / part other than the functional group.</li> <li>• The chemical properties are determined by functional group such as -OH group, or any other example from any other homologous series.</li> </ul>	½ , ½ ½ , ½  ½  ½	    3
Q8.	i) Ethane: C <sub>2</sub> H <sub>6</sub> <div style="display: flex; align-items: center; justify-content: center; margin: 10px 0;">  <span style="margin: 0 20px;">/</span>  </div>	½ , ½	

ii) Ethene: C <sub>2</sub> H <sub>4</sub>		1/2, 1/2	
iii) Ethyne: C <sub>2</sub> H <sub>2</sub>		1/2, 1/2	3
Q9.	<ul style="list-style-type: none"> <li>For systematic and simplified study of elements and their compounds.</li> <li>Basic property: Atomic Number.</li> <li>Modern periodic Law: The properties of elements are a periodic function of their atomic number.</li> <li>Metals are found on the left side and centre of the Modern Periodic Table.</li> <li>Metalloids are found in a zig-zag manner between the metals and the non-metals.</li> <li>Non-metals are found on the right side of the Modern Periodic Table.</li> </ul>	1/2 1/2 1/2 1/2 1/2 1/2	3
Q10.	<b>Note:</b> Since the information given in the question is inaccurate, full marks are to be awarded to every candidate.	3	3
Q11.	DNA copying is essential because it makes possible the transmission of characters from parents to the next generation. Advantages of sexual reproduction over asexual reproduction – Sexual reproduction gives rise to variations; which are essential for evolution as well as survival of species under unfavorable conditions.	1 1+1	3
Q12.	 <p style="text-align: right;">Drawing</p> <p style="text-align: center;">4 correct labeling (i) Anther (ii) Ovary (iii) Stigma (iv) Style</p>	1 1/2 x 4	3
Q13.	<ul style="list-style-type: none"> <li>Placenta is a specialized tissue embedded in the uterine wall. It contains villi on the embryo's side and blood spaces on the mother's side.</li> </ul> Function- helps in exchange of nutrients, gases and waste materials between the mother and embryo / foetus.	1x2 1	3

- Q14. a) i) Fossils showing imprints of feathers along with the bones in dinosaurs / reptiles found,  
 ii) They could not fly and presumably using the feathers for insulation,  
 iii) Later they developed / evolved and adapted feathers for flight.  
 iv) Thus, they give evidence that birds have evolved from reptiles. ½ x 4  
 b) No, the structure of the eye in each of these organisms is different / they have separate evolutionary origins. ½, ½      3

- Q15. • Flow chart

Parents



- Justification: Women produce only one type of ovum / (carrying X chromosome) and males produce two types of sperms (carrying either X or Y chromosome) in equal proportions. So the sex of a child is a matter of chance depending upon the type of sperm fertilizing the ovum. ½      ½
- ½
- ½
- ½
- ½
- 1      3

- Q16. • Statement of two laws of refraction 1 x 2

•  $c = 3 \times 10^8 \text{ m/s}$   $v = 1.4 \times 10^8 \text{ m/s}$

• 
$$\text{Absolute refractive index} = \frac{\text{Speed of light in vacuum}}{\text{Speed of light in medium}}$$

$$= \frac{3 \times 10^8 \text{ m/s}}{1.4 \times 10^8 \text{ m/s}} = 2.14$$

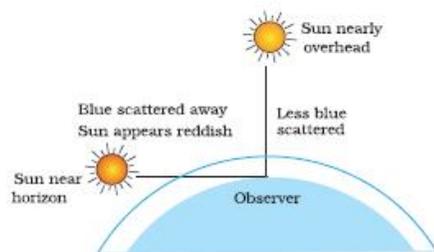
½

½

3

- Q17. • The fine particles in the atmosphere scatter light of shorter wavelength (blue color) more strongly than the light of longer wavelength (red color) 1 ½

**OR**



	<ul style="list-style-type: none"> <li>The sky would appear dark</li> <li>No atmosphere for scattering</li> </ul>	1/2		
		1		3
Q18.	<p>Carbon has 4 electrons in its outermost shell. It cannot lose 4 electrons to form <math>C^{4+}</math> because very high energy is required to remove 4 electrons. It cannot gain 4 electrons to form <math>C^{4-}</math> ions because it is difficult for 6 protons to hold on to 10 electrons.</p> <ul style="list-style-type: none"> <li>Ionic / Electrovalent Bonds ,</li> <li>Covalent bonds.</li> <li>There are no charged particles in carbon compounds and hence poor conductors of electricity.</li> </ul>	1 1/2		
		1 1/2		
		1/2		
		1/2		
		1		5
Q19.	<ul style="list-style-type: none"> <li><math>h = +1.5 \text{ cm}; f = -12 \text{ cm}; u = -18 \text{ cm} \quad v = ? \quad h' = ?</math></li> </ul> <p>a) <math>\frac{1}{f} = \frac{1}{v} + \frac{1}{u}</math></p> $\therefore \frac{1}{v} = \frac{1}{f} - \frac{1}{u} = \frac{1}{(-12)} - \frac{1}{(-18)}$ $= \frac{-1}{12} + \frac{1}{18} = \frac{-3+2}{36} = \frac{-1}{36}$ $\therefore v = -36 \text{ cm}$ <p>b) <math>h' = -\frac{v}{u} \times h</math></p> $= -\frac{-36 \text{ cm}}{-18 \text{ cm}} \times 1.5 \text{ cm} = -3 \text{ cm} \quad (\text{Magnified Inverted image})$ <ul style="list-style-type: none"> <li>If <math>u = -10 \text{ cm}</math> No distinct image would be formed on the screen. In this case the image formed will be virtual (object will be within focal length)</li> </ul>	1/2		
		1/2		
		1		
		1		
		1		5
Q20.	<ul style="list-style-type: none"> <li>Power of lens – Ability of a lens to converge or diverge light rays/ Degree of convergence or divergence of light ray achieved by a lens/ Reciprocal of focal length of the lens)</li> <li>S. I. unit is dioptre</li> <li>Convex lens has positive power</li> <li><math>v = +40 \text{ cm}; h' = h</math></li> <li>The lens is convex/ converging</li> </ul>	1		
		1/2		
		1/2		
		1		

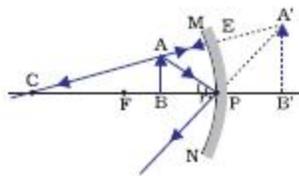
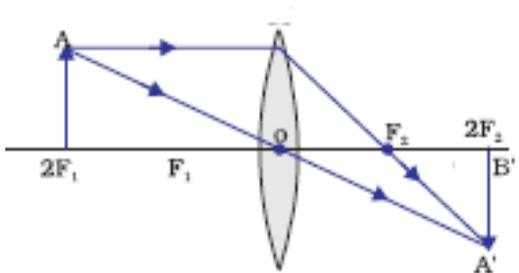
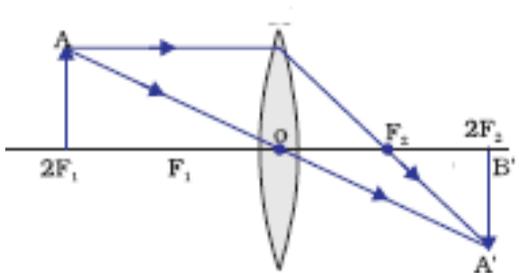


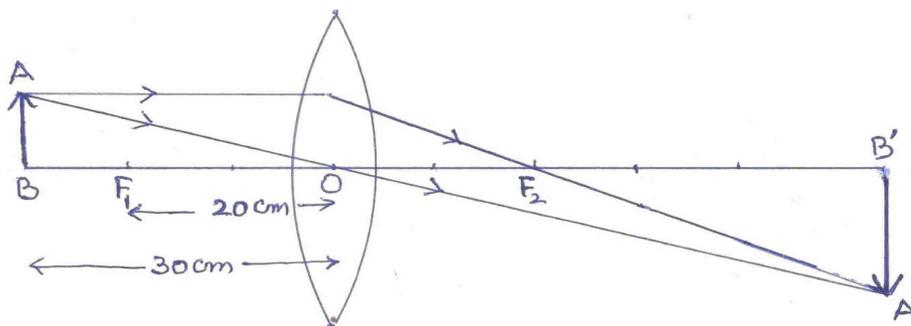
	Image is real, inverted and same sized ∴ object is at 2F $2f = 40 \text{ cm} \quad \therefore f = 20 \text{ cm}$ $P = \frac{1}{f} = \frac{100}{20 \text{ cm}} = 5 \text{ dioptre}$	$\frac{1}{2}$	
		$\frac{1}{2}$	
	•		
		1	5
Q21.	<ul style="list-style-type: none"> <li>• i) Cornea – Refraction of the light rays falling on the eye.</li> <li>ii) Iris – To control the size of the pupil.</li> <li>iii) Pupil – To regulate and control the amount of light entering the eye.</li> <li>iv) Retina – To act as a screen to obtain the image of object and generate electrical signals which are sent to the brain via optic nerves.</li> <li>• Ways of motivating people for the noble cause of eye donation street play, Banners, Poster, door to door campaign etc..</li> <li>• Objectives – To develop the habit of group work To work for a common cause To understand social issues and problems.</li> </ul>	$\frac{1}{2} \times 4$	
		3	5
Q22.	Carbon has 4 electrons in its outermost shell .It cannot lose 4 electrons to form $C^{4+}$ because very high energy is required to remove 4 electrons. It cannot gain 4 electrons to form $C^{4-}$ ions because it is difficult for 6 protons to hold on to 10 electrons.	1 $\frac{1}{2}$	
	<ul style="list-style-type: none"> <li>• Ionic / Electrovalent Bonds ,</li> <li>• Covalent bonds.</li> <li>• There are no charged particles in carbon compounds and hence poor conductors of electricity.</li> </ul>	1 $\frac{1}{2}$	
		1	5
Q23.	<ul style="list-style-type: none"> <li>a) A – Stigma B –Pollen tube C – Ovary D – Female germ cell / Egg cell</li> <li>b) Pollination – Transfer of pollen grains from anther to the stigma of a flower.</li> </ul>	$\frac{1}{2} \times 4$	
	Significance of pollination – Process of pollination leads to fertilization as it brings the male and female gametes together for fusion.	$\frac{1}{2}$	
	c) After a pollen falls on a suitable stigma, the pollen tube grows out of the pollen grain and travels through the style to reach the ovule in the ovary. Here the male germ cell (carried by the pollen tube) fuses with the female germ cell to form a zygote.	1	
	<ul style="list-style-type: none"> <li>i) Ovule</li> <li>ii) Ovary</li> </ul>	$\frac{1}{2}$	
		$\frac{1}{2}$	5

Q24.	Speciation - formation of new species from pre-existing ones.	1	
	Factors – 1) Mutations 2) Natural selection 3) Genetic drift 4) Geographical Isolation	$\frac{1}{2} \times 4$	
	Geographical isolation cannot be a major factor in the speciation of a self pollinating plant species.	1	
	Reason – physical barrier cannot be created in self pollinating plants.	1	5

**SECTION – B**

	25) D	26) B	27) B		
	28) A	29) A	30) D		
	31) C	32) D	33) C	1x9	9
Q34.	<ul style="list-style-type: none"> <li>Acetic acid is a colorless liquid. It is miscible / soluble in water. (or any other physical property)</li> <li>On adding a pinch of sodium hydrogen carbonate, Brisk effervescence is observed. Evolution of a colorless / odourless gas.</li> </ul>	$\frac{1}{2}$	$\frac{1}{2}$		
		$\frac{1}{2}$	$\frac{1}{2}$		2

Q35.	Inverted, magnified	1	
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Q36.		1	2
		2	2