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

Marking Scheme – Science (Delhi) 31/1/1

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.

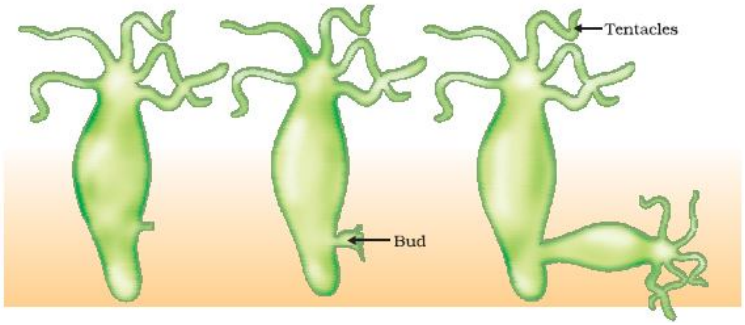
10. A full scale of mark 0 to 100 has to be used. Please do not hesitate to award full marks if the answer deserves it.

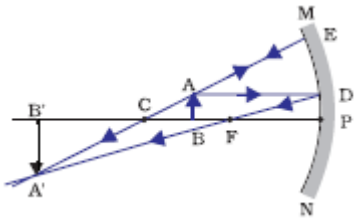
11. As per orders of the Hon'ble Supreme Court the candidates would now be permitted to obtain photocopy of the Answer Book on request on payment of the prescribed fee. All Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points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

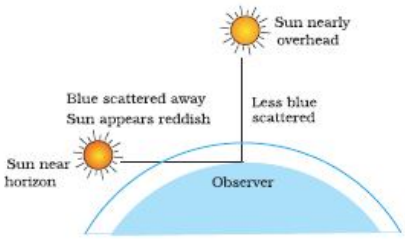
MARKING SCHEME
CLASS X – DELHI

Code No. 31/1/1

	Expected Answer/ Value point **SECTION – A**	Marks	Total
Q 1.	• Propene • C_3H_6	½ ½	1
Q2.	a) To produce sperms b) To produce male sex hormone / testosterone	½ ½	1
Q3.	It shields the surface of the earth from ultraviolet rays from the Sun.	1	1
Q4.	i) Virtual ii) Erect iii) Same size as the object iv) As far behind the mirror as the object is in front v) Laterally inverted (Any four)	½ × 4	2
Q5.	• Because large number of life forms / range of life forms (such as bacteria, fungi, fern, nematodes, insects, birds, reptiles, mammals, gymnosperms and angiosperms) are found there / A region with large biodiversity of endangered species, many of them being highly endemic and such regions being subjected to large scale destruction are designated as "Hot spots" by ecologists. • Two ways – i) Not allowing cutting of trees ii) To promote / make people aware about the importance of forests and wild life. iii) Not using wild life products / fur coat or any other named product. (any two)	1 ½ × 2	2
Q6.	• A type of management which encourages utilization of resources that meet current basic human needs while preserving the resources for the needs of future generations. • Reuse is better as it does not consume energy.	1 1	2
Q7.	• Example:  • Addition of hydrogen to the molecule of an unsaturated hydrocarbon /compounds is hydrogenation.	½ ½	

	• Essential condition for hydrogenation is the presence of a catalyst like Ni /Pd / Pt.	1	
	• Change observed in the physical property during hydrogenation is the change of the unsaturated compound from the liquid state to the corresponding saturated compound in the solid state / its boiling or melting point will increase.	1	3
Q8.	• Soaps are sodium or potassium salts of long chain carboxylic acids.	½	
	• Detergents are ammonium or sulphonate salts.	½	
	• Cleansing action of soap – One part of soap molecule is ionic / hydrophilic and dissolves in water. The other part is non-ionic / carbon chain / hydrophobic part which dissolves in oil.	1	
	• Thus soap molecules arrange themselves in the form of a micelle / diagram of a micelle.	½	
	• On rinsing with water, soap is washed off, lifting the oily dirt particles with it.	½	3
Q9.	18 groups	½	
	7 periods	½	
	a) • Atomic size increases.	½	
	• Metallic character increases.	½	
	b) • Atomic size decreases.	½	
	• Metallic character decreases.	½	3
Q10.	(i) K / Potassium.	1	
	(ii) Be and Ca.	1	
	• KX or KCl	½	
	• Ionic / Electrovalent.	½	3
Q11.	• A process where a DNA molecule produces two similar copies of itself in a reproducing cell.	1	
	• Importance – (i) It makes possible the transmission of characters from parents to the next generation.	1	
	(ii) It causes variation in the population.	1	3
Q12.			
	Drawing	2	
	Two labeling – Bud, Tentacles	½, ½	3

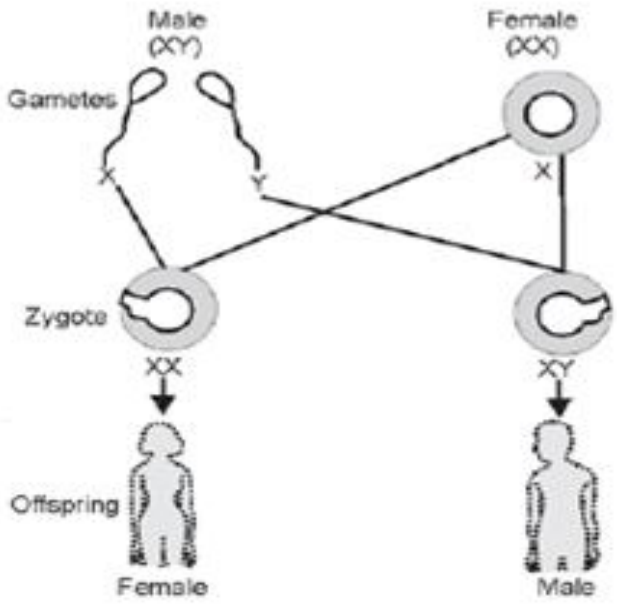
Q13	• Four methods – (i) Mechanical or barrier method OR Male or female condoms (ii) Use of hormonal preparations OR Oral Pills / i-pill / Saheli (iii) Use of loop or copper T OR IUCD (iv) Surgical method OR tubectomy / vasectomy	½ x 4	
	• Effect on health & prosperity: (i) Health of women is maintained (ii) Parents can give more attention to children (iii) More resources can be made available. (any two)	½ × 2	3
Q14.	• Acquiring knowledge / skill in one's lifetime such as learning dance, music, physical fitness or any other suitable example. (any two)	½, ½	
	• Reason : (i) Such characters / experiences acquired during one's lifetime do not bring any change in the DNA of the reproducing cell / germ cell.	1	
	(ii) Only germ cells are responsible for passing on the characters from the parents to the progeny.	1	3
Q15.	(i) No, the structure of the eye in each of the organisms is different.	½, ½	
	(ii) • Fossils of certain dinosaurs / reptiles show imprints of feathers along with their bones but they could not fly presumably using the feathers for insulation;	1	
	• Later they developed / evolved and adapted feathers for flight, thus becoming the ancestors of present day birds. (OR any other suitable evidence/example)	1	3
Q16.	The candidate may choose any two of the following rays: i) A ray parallel to the principal axis, after reflection, will pass through the principal focus of a concave mirror. ii) A ray passing through the principal focus of a concave mirror after reflection will emerge parallel to the principal axis. iii) A ray passing through the centre of curvature of a concave mirror after reflection is reflected back along the same path. iv) A ray incident obliquely to the principal axis towards the pole of a concave mirror is reflected obliquely, making equal angles with the principal axis. (any two)	1 × 2	
	 or a similar representation	1	3
	Note: The candidate must draw the ray diagram as per the two rays chosen by him/her. In the diagram shown above first two rays have been chosen/used.		

Q17.		1	
	• Light from the Sun near the horizon passes through thicker layers of air and longer distance	1	
	• Most of the blue light and shorter wavelengths of sunlight are scattered away by the particles. Light of larger wavelength reaches us giving the reddish appearance	1	3
Q18.	(a) No, it pollutes air.	½, ½	
	Advantage: Segregation of wastes into biodegradable and non biodegradable wastes at the initial stage of disposal saves time and energy.	1	
	(b) By putting wastes in proper dustbins Or any other	1	3
Q19.	• Carbon has 4 electrons in its outermost shell, and needs to gain or lose 4 electrons to attain noble gas configuration.	1	
	• Losing or gaining 4 electrons is not possible due to energy considerations; hence it shares electrons to form covalent bonds.	1	
	Two reasons for large number of carbon compounds :		
	• Catenation: The unique ability of carbon to form bonds with other atoms of carbon giving rise to long chains of different types of compounds.	1	
	• Tetravalency : Since carbon has a valency of 4, it is capable of bonding with four other atoms of carbon or atoms of elements like oxygen, hydrogen, nitrogen, sulphur, chlorine, etc.	1	
	The reason for the formation of strong bonds by carbon is its small size which enables the nucleus to hold on to the shared pairs of electrons strongly.	1	5
Q20.	• Functions: -		
	Ovary: (i) Production of female hormone / oestrogen and progesterone.	½	
	(ii) Production of female gamete / egg /germ cell.	½	
	Oviduct : (i) Transfer of female gamete from the ovary.	½	
	(ii) Site of fertilization.	½	
	Uterus: (i) Implantation of Zygote / embryo.	½	
	(ii) Nourishment of developing embryo.	½	
	• Placenta is a special disc like tissue embedded in the mother's uterine wall and connected to the foetus / embryo.	1	
	• Placenta provides a large surface area for glucose and oxygen/ nutrients to pass from the mother's blood to the embryo/ foetus.	1	5

Q21.

- 23 pairs of chromosomes — 1
- One pair, two types — ½ , ½
- Flow chart — ½

Parents



½ ½

- 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. — 1 — 5

Q22. a) Statement of laws of Refraction of light (two laws) — 1 × 2

When a ray of light travels from vacuum or air into a given medium then ratio of sin i to sin r is called absolute refractive index of the medium. — ½

$$\text{Absolute refractive index} = \frac{\text{Speed of light in vacuum}}{\text{Speed of light in the medium}}$$ — ½

b) $n_A = 2.0$; $n_B = 1.5$ $v_B = 2\times10^8$ m/s

i) $n_B = \frac{c}{v_B}$ — ½

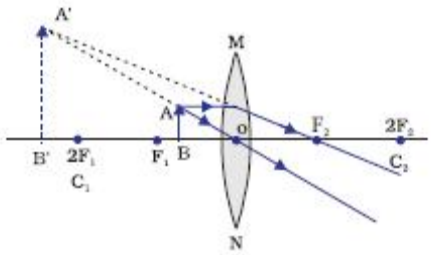
$\therefore\ c = n_B v_B = 1.5\times 2.10^8 \text{ m/s} = 3\times10^8 \text{ m/s}$ — ½

ii) $n_A = \frac{c}{v_A}$

$\therefore\ v_A = \frac{c}{n_A} = \frac{3\times10^8 \text{ m/s}}{2} = 1.5\times10^8 \text{ m/s}$ — 1 — 5

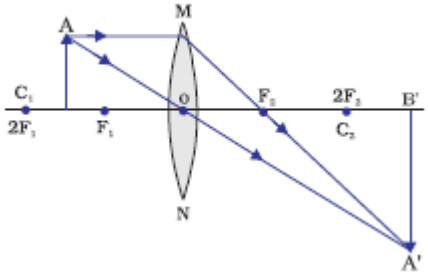
Q23.

- **For magnified erect image** – Object is between the optical centre and principal focus of a convex lens — ½



1

- **For magnified inverted image** – object between F and 2F of a convex lens ½



1

- $u = -20\text{cm}$ $f = +10\text{cm}$ $v = ?$

$$\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$ ½

$$\therefore \frac{1}{v} = \frac{1}{f} + \frac{1}{u}$$

$$\frac{1}{v} = \frac{1}{(+10)} + \frac{1}{(-20)}$$ ½

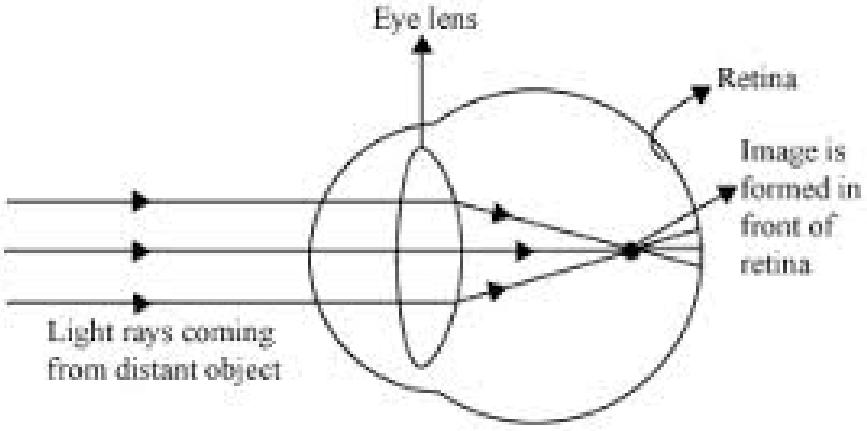
$$\frac{1}{v} = \frac{1}{10} - \frac{1}{20} = \frac{+2-1}{20} = \frac{+1}{20}$$

$\therefore\ v = +20$ cm 1 5

Q24. Defect – Myopia / Nearsightedness 1

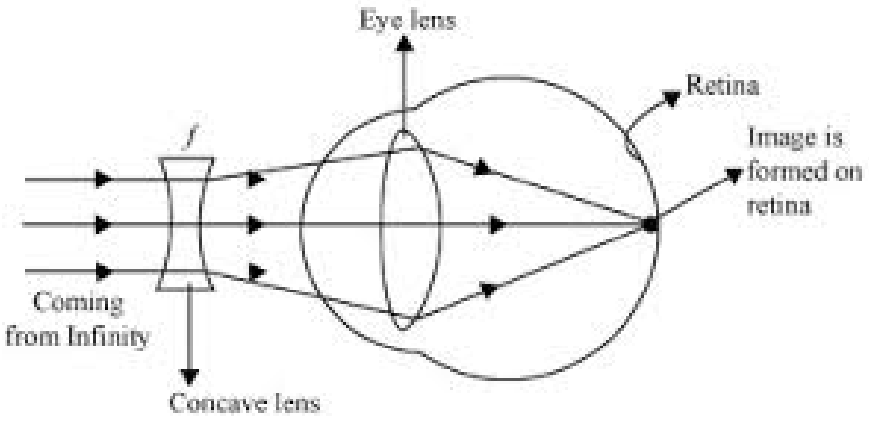
Correction – By using a concave lens of suitable power 1

i)



1 ½

ii)



1 ½ | 5

SECTION – B

25) A	26) D	27) C
28) B	29) D	30) C
31) B	32) C	33) B

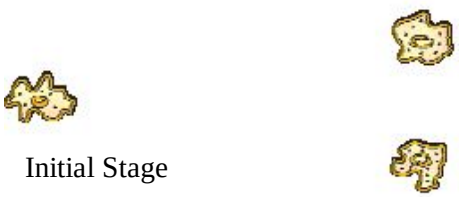
1x9 | 9

Q34. Two observations ;

- Brisk effervescence — ½
- Evolution of a colourless/ odourless gas. — ½

$CH_3COOH + NaHCO_3 \longrightarrow CH_3COONa + H_2O + CO_2$ — 1 | 2

Q35. Binary Fission — ½



Initial Stage — Final Stage

½, ½

Elongation of Nucleus — ½ | 2

Q36. (a) Away from the lens — ½

(b) Increases — ½

(c) No image on the screen — 1 | 2