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

#### Marking Scheme – Science (Foreign) 31/2/1

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# MARKING SCHEME CLASS X – FOREIGN

	Expected Answer/ Value point	Marks	Total
	SECTION – A		
01	HCOOH CH3COOH	$\frac{1}{2} + \frac{1}{2}$	1
<u> </u>		,2 , ,2	-
02	Testis and Ovary	$1/_2 \pm 1/_2$	1
Q2.		/2   /2	1
03	Crop fields/Gardens/Aguarium/Parks/ (any other two)	1/2 + 1/2	1
Q3.	Crop neids/ Gardens/ Aquandin/ Tarks/ (any other two)	72 - 72	1
Q4.		1	
	Marking angle <i>i</i> and angle <i>r</i>	$\frac{1}{2} + \frac{1}{2}$	2
Q5.	Increase soil temperature/ adverse effect on agricultural products/ land and animals die after consumption/ clog drains, may cause flood like situation/ any other (three only) Alternative- Jute bags/ Paper bags/ Cloth bags/ Biodegradable bags ( any one)	<sup>1</sup> / <sub>2</sub> x 3 <sup>1</sup> / <sub>2</sub>	2
Q6.	<ul> <li>Burning of fossil fuel producesCO<sub>2</sub>, oxides of Sulphur and nitrogen</li> <li>CO<sub>2</sub> is a greenhouse gas, its excess CO<sub>2</sub> produces greenhouse effect, increasing earth's temperature/ causes global warming.</li> </ul>	1	2
~ -			
Q7.	• (i) Alkaline KMnO <sub>4</sub> (ii) Acidified $K_2Cr_2O_7$	1	
	<ul> <li>Ethanol does not affect litmus paper whereas Ethanoic acid turns</li> <li>i) Blue litmus red</li> <li>ii) Ethanol does not react with NaHCO<sub>3</sub> whereas Ethanoic acid gives</li> </ul>	1	2
	blisk ellervesence with the evolution of colourless gas/ $CO_2$	1	3
Q8.	Carbon cannot lose 4 $e^-$ to form C <sup>+4</sup> cations, as very high energy is required to remove 4 $e^-$	1⁄2	
	Carbon cannot gain 4 e <sup>-</sup> to form C <sup>-4</sup> anions as nucleus with 6 protons cannot hold 10 electrons.	1⁄2	
	Carbon can share 4e <sup>-</sup> to form covalent compounds. Carbon compounds do not conduct electricity being non polar and do not form	1⁄2	
	ions/ charged particles. Due to weak intermolecular forces of attraction, carbon compounds have low	1	
	melting points and boiling points.	1⁄2	3

Q9.	• Atomic number is more important parameter than atomic mass as atomic number determines the number of valence electrons which decide the	1	
	<ul> <li>Metallic character decreases from left to right in a period, because the tendency to lose electrons decreases due to increased attraction between nucleus and valence electrons.</li> </ul>	<sup>1</sup> / <sub>2</sub> + <sup>1</sup> / <sub>2</sub>	
	• Metallic character increases down the group, as the tendency to lose electrons increases, due to decreased attraction between nucleus and	$\frac{1}{2} + \frac{1}{2}$	
	valence electrons because outermost electrons are farther away.		3
010	$(a) \mathbf{Y} = 2 9 9 2$	14 + 14	
QIU	(a) $\Lambda_{(20)}$ -2,0,0,2 Valence electrons-2	72 + 72	
	Hence valency is 2		
	(b) It is a metal	1/2	
	(c) $XC_{2}$	1/2	
	(d) It is more reactive than Mg as reactivity increases down the group	1/2	
	Mg- III Period	, _	
	And $X_{20}$ (Ca)- IV Period	1/2	3
Q11	• Variations may arise due to small inaccuracies in DNA copying during reproduction; as a result of sexual reproduction where genetic materials from two different organisms combine to form a new organism.	2 x 1	
	• During adverse conditions some variations may give survival advantage to the organism		
	e.g. a population of bacteria living in temperate waters. If the temperature of water increases suddenly then most of the bacteria		
	would die but few variant bacteria resistant to heat would survive and		
	grow further.	1	
	( or any other example)		3
Q12	• Regeneration- Ability of organisms to give rise to new individual organisms from their body parts.	1	
	• Planaria / Hydra;	1⁄2	
	Amoeba/ Rhizopus/ Banana/ Sugarcane/ any other	1⁄2	
	• Regeneration is carried out by <u>specialized cells</u> which are not present in		
	non regenerating organisms.	1	3
0.15			
Q13	• Contraception: Any method which prevents conception/ pregnancy is called contraception.	1/2	
	<ul> <li>Barrier Method, Chemical Method, Surgical Method (any two)</li> <li>Health of women (mother) is maintained.</li> </ul>	1/2, 1/2	
	Parents can give more attention to their children/ family,		
	More resources may be made available for improvement of standard of living (or any other relevant point) (any three)	¹∕₂ x 3	
			3
			-
Q14	Study of homologous organs as forelimbs of mammals, birds, reptiles and		
	amphibian; show that though they perform different functions have similar		
	basic / internal structure; this is because they have evolved from common		
	ancestor and help us in determining the closeness between two species in		
	evolutionary terms	1+1+1	3

Q15.	(i) Natural Selection		
	(ii) Mutation		
	(iii) Genetic Drift		
	(iv) Geographical Isolation		
	(any three)	3 x ½	
	( brief description of any three)	$3 \times \frac{1}{2}$	3
Q16.	• $(m = -1, \text{ means that the})$		
	Image is real, inverted and of the same size as the object)	17	
	$\therefore$ Object distance = image distance = 2f = 25 cm	1/2 1/	
	f = 25 = 12.5  cm	1/2	
	2	14	
	• Nature of the lens is convex/ converging	<sup>7</sup> 2	
	• On displacing the object distance by 15 cm, towards the lens, the	72	
	object distance becomes 10 cm which is less than the focal length.		
	Image formed now is virtual/ same side of lens as the object		
	•		
	A'		
	***** M		
	$\wedge$		
	A		
	$0$ $F_2$ $2F_2$	1	
	$B' 2F_1 F_1 B C_2$		
	$C_1$		
	V		2
	N		3
017		┟────┤	
Q17			
	7		
	- Charles - Char		
	Earth		
	diagram + labelling	1 1/2	
	When the sun is a bit below the horizon, light rays from it are refracted by the	1.17	
	atmospheric air and reach our eye after bending and we can see the sun a little	1 72	
	before ( about 2 min) the actual sunrise/ after the actual sunset.		3
		1	

Q18.	(a) (i) During growing of fruit crops, pesticides are often used which may	1/2	
	contaminate the fruit and hence the fruit juices.		
	(11) by using contaminated ground water for making fruit juices.	1/2	
	(b) Bio magnification/ Biological magnification The progressive accumulation of non biodegradable toxic substances/	1	
	chemicals at each trophic level leading to their maximum concentration at the		
	highest trophic level (human beings) is called biological magnification.	1	3
Q19.	Esters: Pleasant smelling organic compounds	1⁄2	
	• Formed by the reaction of carboxylic acids and alcohols in the presence of	1	
	acid.		
	Equation :		
	$CH_{3}COOH + C_{2}H_{5}OH \rightarrow \xrightarrow{acta} CH_{3}COOC_{2}H_{5} + H_{2}O$	1	
	(Ester)	1	
	• Sodium ethanoate is formed.	1/2	
	• $CH_3COOC_2H_5 + NaOH \rightarrow CH_3COONa + C_2H_5OH$	1	
	• Name of Reaction : Saponification	1/2	
	• Use : Preparation of soap	1⁄2	5
Q20.	Unisexual Flower : Papaya/ Water-melon/ any other (any one)	1⁄2	
	Bisexual Flower : Hibiscus/ Rose/ any other	1⁄2	
	(ally one)		
	of the same flower or to the flower of the same plant	1	
	Cross pollination: The pollen grains are transferred from the anther to the	1	
	stigma of a flower of a different plant.	1	
	• After pollen lands on a suitable stigma, a pollen tube grows out of pollen	1	
	grain and travels through the style to reach the ovary	1/2	
	• The male germ cell fuses with the female germ cell to form a zygote.	1/2	
	• Zygote divides several times to form an embryo within the ovule	1/2	
	• The ovule develops tough coat and gradually gets converted into a seed	1⁄2	5
Q21.	• Fossil : Preserved traces of living organisms are called fossils.	1	
	• Fossils are formed when the body parts of the dead organisms do not		
	decompose completely and are caught up in mud and eventually		
	harden to retain the impression of the body parts.	2	
	• Age of the fossil can be determined by:		
	(i) Carbon dating method	16 16	
	<ul> <li>Importance of fossils in the study of evolution:</li> </ul>	72 + 72	
	(i) Help us in knowing about the species which are no longer		
	alive.		
	(ii) Provide evidence of missing links between two groups of		
	organisms. (any one)	1	5
Q22.	a) Observation no 3, indicates $u = -20$ cm $v = +20$ cm	1	
	It suggests that object is at 2F		
	Interest f = $+10 \text{ cm}$	1/2	
	b) Observation no o, because, here:		
	u = -5 cm Thus object is between 'O' and 'F'	1/2	
		72	





Q35.	<ul><li>i) Soak a few seeds of gram/Bengal gram/chana/kidney beans/etc and leave them overnight.</li><li>ii) Drain the excess water.</li></ul>		
	iii) Cover the seeds with a wet cloth and leave them for a day.		
	iv) Cut open the seed carefully and observe the different parts.	1/ 4	2
		1⁄2 X 4	2
Q36.	A use i i i i i i i i i i i i i i i i i i i		
	Diagram	1	2
	Labelling	1	2

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

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## MARKING SCHEME CLASS X – FOREIGN

	Expected Answer/ Value point	Marks	Total
	SECTION – A		
01.	HCHO: CH <sub>3</sub> CHO	1/2 1/2	1
<u> </u>		/2,/2	-
02	Testis: Ovaries	1/2 1/2	1
Q2.		72,72	1
02	Donda/Lakas/Divara/Desarts/Foresta	16 16	1
Q3.	Polids/ Lakes/ Rivers/ Deserts/ Forests	72,72	1
	(ally two)		
0.1			
<b>Υ</b> Τ.	F F P		
	Ray diagram with direction of rays	1	
	Marking /i and /r correctly	$\frac{1}{1/2} + \frac{1}{2}$	2
		/2 / /2	
Q5.	<ul> <li>Because, in a forest, various species are available</li> <li>Two ways: <ul> <li>i) Avoiding cutting of trees and killing of animals/ wildlife</li> </ul> </li> </ul>	1	2
	11) Educating people about the importance of forests and wildlife in sustainance of life on the earth	1/2 1/2	
Q6.	CO <sub>2</sub> , water vapours, oxides of sulphur and Nitrogen	1	2
	Harmful Effects; Global warming, pollution, green house effect (any two)	1	
07.	a) X(19): 2.8.8.1		3
	i)Valency: 1	1/2	
	ii)X is a metal	1/2	
	b) $X_2O$	1	
	c) X is more reactive than Na	1/2	
	X and Na belong to the same group. But Na is in the third period and X		
	is in the fourth period. Since reactivity increases down the group X is		
	more reactive than Na.	1/2	
		. 2	
08	• Atomic number is more important personator then stomic mass as stomic	1	
Q0.	number determines the number of valence electrons which decide the chemical properties of an atom of an element.		
	• Metallic character decreases from left to right in a period, because the	1/2 + 1/2	3

	<ul> <li>tendency to lose electrons decreases due to increased attraction between nucleus and valence electrons.</li> <li>Metallic character increases down the group, as the tendency to lose electrons increases, due to decreased attraction between nucleus and valence electrons because outermost electrons are farther away.</li> </ul>	1/2 + 1/2	
Q9.		1/2 , 1/2	
	Difference :		
	Covalent     Ionic       Electrical conductivity     Do not conduct     Conducts electricity       electricity     electricity     High       (or any other)     (or any other)	1.1	3
		-, -	-
Q10.	Carbon cannot lose 4 e <sup>-</sup> to form C <sup>+4</sup> cations, as very high energy is required to remove 4 e <sup>-</sup> Carbon cannot gain 4 e <sup>-</sup> to form C <sup>-4</sup> anions as nucleus with 6 protons cannot hold 10 electrons. Carbon can share 4e <sup>-</sup> to form covalent compounds. Carbon compounds do not conduct electricity being non polar and do not form ions/ charged particles. Due to weak intermolecular forces of attraction, carbon compounds have low melting points and boiling points.	1/2 1/2 1/2 1 1 1/2	3
011	(i) Natural Solution		
Q11.	(i) Natural Selection (ii) Mutation (iii) Genetic Drift (iv) Geographical Isolation ( any three) ( brief description of any three)	3 x <sup>1</sup> / <sub>2</sub> 3 x <sup>1</sup> / <sub>2</sub>	3

Q12.	Methods of tracing evolutionary relationships i)Studying homologous organs: Organs having same structural plan or origin but are modified to perform	1⁄2	
	different functions. eg:Forelimbs of vertebrates ii)Studying analogous organs:	1⁄2	
	Organs have different structural plan or origin but are modified to perform same function.	1⁄2	
	Wings of birds and wings of bat/wings of insects and wings of bat (any one)	1⁄2	
	iii)Study of fossils : By studying fossils,we can know about the species which once existed. Example:Dinosaur skull/Invertebrate(Trilobite) (Any other)	1/2 1/2	3
Q13.	<ul> <li>Variations may arise due to small inaccuracies in DNA copying during reproduction; as a result of sexual reproduction where genetic materials from two different organisms combine to form a new organism.</li> <li>During adverse conditions some variations may give survival advantage</li> </ul>	2 x 1	
	e.g. a population of bacteria living in temperate waters. If the temperature of water increases suddenly then most of the bacteria would		
	die but few <u>variant bacteria resistant to heat</u> would survive and grow further. ( or any other example)	1	3
0.1.1			
Q14.	<ul> <li>Regeneration- Ability of organisms to give rise to new individual organisms from their body parts.</li> </ul>	1	
	• Planaria / Hydra; Amoeba/ Rhizopus/ Banana/ Sugarcane/ any other	$\frac{1/2}{1/2}$	
	• Regeneration is carried out by <u>specialized cells</u> which are not present in non regenerating organisms.	1	3
Q15.	Placenta: A specialized tissue embedded in the uterine wall. It contains villi on embryo side and blood spaces which surround villi on the mother's side.	1	
	i) Provides large surface area for glucose/nutrients and $O_2$ to pass from the mother to the embryo.	1	
	ii) Wastes generated by foetus are transferred into the mother's blood for their removal.	1	3
016	- 1		
Q10.	• $m = -1$ i.e. Image is real, inverted and same size as the object		
	and, Object distance = Image distance = $2f = 35$ cm	1⁄2	
	Nature of lens: Convex/ Converging	1⁄2	
	• As $2f = 35$ cm $\therefore f = 35$ cm = + 17.5 cm	1⁄2	
	2 • On displacing the object 20 cm towards the lans, the object distance		
	becomes 15c m (35 cm – 20 cm) i.e. it lies between F and O of the lens. Image formed now is virtual/ on the same side of lens as the object.	1⁄2	



Foreign - 31/2/2



	b) Hypermetronia/Long sightedness	1	
	b) Hypermetropia/Long-signedness	1	
	N N'	1	
		1	
Q22.	Esters: Pleasant smelling organic compounds	1/2	
	<ul> <li>Formed by the reaction of carboxylic acids and alcohols in the presence of acid. Equation : CH<sub>3</sub>COOH + C<sub>2</sub>H<sub>5</sub>OH→ <u>acid</u> CH<sub>3</sub>COOC<sub>2</sub>H<sub>5</sub> + H<sub>2</sub>O (Ester)</li> <li>Sodium ethanoate is formed.</li> <li>CH<sub>3</sub>COOC<sub>2</sub>H<sub>5</sub> + NaOH→CH<sub>3</sub>COONa + C<sub>2</sub>H<sub>5</sub>OH</li> <li>Name of Reaction : Saponification</li> <li>Use : Preparation of soap</li> </ul>	$ \begin{array}{c} 1 \\ \frac{1}{2} \\ \frac{1}{2} \\ \frac{1}{2} \\ \frac{1}{2} \end{array} $	5
022	Unicovual Flower : Denove/Water malon/ onv other (any one)		
Q23.	Bisexual Flower : Hibiscus/ Rose/ any other (any one) Self pollination: The pollen grains are transferred from the anther to the stigma of the same flower or to the flower of the same plant	<sup>1</sup> /2 <sup>1</sup> /2	
	Cross pollination: The pollen grains are transferred from the anther to the stigma of a flower of a different plant.	1	
	• After pollen lands on a suitable stigma, a pollen tube grows out of pollen		
	grain and travels through the style to reach the ovary	1/2	
	<ul> <li>I ne male germ cell ruses with the remale germ cell to form a zygote.</li> <li>Zygote divides several times to form an ambrue within the evole</li> </ul>	1/2	
	<ul> <li>The oyule develops tough coat and gradually gets converted into a seed</li> </ul>	<sup>+</sup> /2 1/2	5
<u> </u>	The orace develops tough cout and graduary gets converted into a seed	/2	5
Q24.	• Fossil : Preserved traces of living organisms are called fossils.	1	
	• Fossils are formed when the body parts of the dead organisms do not		
	decompose completely and are caught up in mud and eventually harden		5

	to retain the impression of the body parts.	2	
	• Age of the fossil can be determined by:		
	(i) Relative method		
	(ii) Carbon dating method	$\frac{1}{2} + \frac{1}{2}$	
	(ii) Carbon dating method	/2   /2	
	• Importance of fossils in the study of evolution:		
	(1) Help us in knowing about the species which are no longer alive.	1	
	(1) Provide evidence of missing links between two groups of	1	
	organisms. ( any one)		
	SECTION – B		
	25) d 26) d 27) c		
	28) b 29) a 30) c		
	31) d 32) b 33)c	1 x 9	9
		_	-
034.			
	A		
	45		
	X.		
	A H		
	171,		
	Å		
	Diaoram	1	
	Labelling	1	2
	Laothing	1	
035	[a] (i) Smells like vinegar		
2001	(ii) Turns blue litmus red		
	[h] (i) brisk effervescence		
	(ii) evolution of colourless gas	1/2 x /	02
	(ii) evolution of colouriess gas	72 74	02
036	i) Soak a faw sads of gram/Bangal gram/ahana/kidnay haans/ata and lague them		
Q30.	1) SOak a few seeus of grani/Dengal grani/Chana/Kiuney Deans/etc and leave them		
	overnight.		
	1) Drain the excess water.		
	111) Cover the seeds with a wet cloth and leave them for a day.		
	iv) Cut open the seed carefully and observe the different parts.		
		<sup>1</sup> ∕₂ x 4	2

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	Expected Answer/ Value point	Marks	Total
	SECTION – A		
01.	CH <sub>3</sub> COCH <sub>3</sub> , CH <sub>3</sub> COC <sub>2</sub> H <sub>5</sub>	1/2, 1/2	1
<u>x</u>		, .2	-
02.	• Fusion of sperm/male gamete and female gamete	1/2	
~	<ul> <li>Oviduct/ fallopian tube</li> </ul>	1/2	1
		/2	1
03	Air Water Minerals Sunlight		
Q3.	An, water, winterais, Sumght (any two)	1/2 + 1/2	1
	(any two)	72 + 72	1
04			
Q4.	P F C		
	Diagram	1	
	Marking $i$ and $r$	1/2 1/2	2
		/2,/2	
Q5.	Judicious use of forest resources for industrial development Waste water generated by industries should be recycled Alternative resources to conserve natural resources (or any other two )	1, 1	2
Q6.	<ul> <li>'Chipko' means 'hug' and 'Andolan' means' movement' This movement was' started in Garhwal region or Uttarakhand by hugging tree trunks to prevent the cutting of trees.</li> <li>i) Forest produce was made available to the local population.</li> <li>ii) It benefitted the environment by conserving the quality of soil and the resources.</li> </ul>	1/2, 1/2 1/2 1/2	2
Q7.	Carbon cannot lose 4 $e^-$ to form C <sup>+4</sup> cations, as very high energy is required to	1/2	
	remove 4 e <sup><math>-</math></sup> Carbon cannot gain 4 e <sup><math>-</math></sup> to form C <sup>-4</sup> anions as nucleus with 6 protons cannot hold 10 electrons.	1/2	
	Carbon can share 4e <sup>-</sup> to form covalent compounds. Carbon compounds do not conduct electricity being non polar and do not form	1⁄2	
	ions/ charged particles. Due to weak intermolecular forces of attraction, carbon compounds have low	1	
	melting points and boiling points.	1⁄2	3

Q8.	Hydrocarbons-Compounds of carbon and hydrogen.	1	
	Saturated Hydrocarbons C <sub>n</sub> H <sub>2n+2</sub>	1⁄2	
	Unsaturated Hydrocarbons $C_nH_{2n}/C_nH_{2n-2}$	1⁄2	
	Structural formula:		
	H H—C—H	1/2	
	H H /	/2	
	Unsaurated Hydrocarbon : $H H H$ $H - C = C - H$	1/2	3
Q9.	• Atomic number is more important parameter than atomic mass as atomic number determines the number of valence electrons which decide the chemical properties of an atom of an element.	1	
	• Metallic character decreases from left to right in a period, because the tendency to lose electrons decreases due to increased attraction between nucleus and valence electrons.	$\frac{1}{2} + \frac{1}{2}$	
	• Metallic character increases down the group, as the tendency to lose electrons increases, due to decreased attraction between nucleus and	$\frac{1}{2} + \frac{1}{2}$	2
	valence electrons because outermost electrons are farther away.		5
010	(2) Y(12) + 2.8.2	1/2	
Q10.	Valency $\cdot 2$	1/2	
	b)Less reactive than Ca as reactivity increases down the group.	1/2, 1/2	
	c)It is a metal	1/2	
	d)Formula of oxide : XO	1⁄2	3
-			
Q11.	Male gamete : sperm	1⁄2	
	Female gamete :ovum/egg	1⁄2	
	Sperms are motile and produced by male individual		
	Ova/eggs are non motile and produced by female individual	1	
	Sexual reproduction	$\frac{1}{2}$	2
	Advantage : Generates more variations	1/2	3
Q12.	<ul> <li>Variations may arise due to small inaccuracies in DNA copying during reproduction; as a result of sexual reproduction where genetic materials from two different organisms combine to form a new organism.</li> <li>During adverse conditions some variations may give survival advantage to the organism</li> </ul>	2 x 1	
	e.g. a population of bacteria living in temperate waters. If the temperature of water increases suddenly then most of the bacteria would die but few variant bacteria resistant to heat would survive and grow further. (or any other example)	1	3
012	Contracontion Any mathed at the property of the second sec	1/-	
Q13	• Contraception: Any method which prevents conception/ pregnancy is called contraception.	<sup>4</sup> /2	
	<ul> <li>Barrier Method, Chemical Method, Surgical Method (any two)</li> <li>Health of women (mother) is maintained</li> </ul>	1/2, 1/2	
	Parents can give more attention to their children/ family		
	More resources may be made available for improvement of standard of living (or any other relevant point) (any three)	¹∕₂ x 3	3

Q14.(i) Natural Selection (ii) Mutation (ii) Genetic Drift (iv) Geographical Isolation(any three) (brief description of any three)3 x ½ 3 x ½ 3 x ½Q15.Fossils : The remains or impressions of dead or decayed plants and animals11•Fossils I: The remains or impressions of dead or decayed plants and animals1•Fossils thus how new species arise from old ones • • • Fossils provide missing links, thus helping in the study of evolution.13Q16. $m = -1$ , Hence the image is real and the lens convex. As $m = -1$ , $u = v$ $u + v = 0$ cm (given) is: $4f = 60$ cm1When object is at 2F, image is also at 2F distance i.e. $f = +15$ cm½On displacing the object by 20 cm towards the lens $u = -10$ cm1As $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$ , $\frac{1}{v} = \frac{1}{f} + \frac{1}{u}$ $\frac{1}{\sqrt{2}}$ 1Or $\frac{1}{v} = \frac{1}{1+15}$ cm $+\frac{1}{-10cm} = \frac{-1}{30cm}$ 1/2Or $v = -30$ cm13Q17.At sunrise, light from the sun near the horizon passes through thicker layers of air and larger distance in the earth's atmosphere before reaching our eye.Hence shorter waves are scaltered away and longer (red) waves reach our eye.Hence shorter waves are scaltered away and longer (red) waves reach our eye.Hence shorter waves are scaltered away and longer (red) waves reach our eye.Hence shorter waves are scaltered away and longer (red) waves reach our eye.Hence shorter waves are scaltered away and longer (red) waves reach our eye.Hence shorter waves are scaltered away and longer (red) waves reach our eye.Hence shorter waves are scaltered away and longer (red) waves reach our eye.Hence shorter waves are scaltered away and longer (red)				
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The progressive accumulation of non biodegradable toxic substances/ chemicals		(b) Bio magnification/ Biological magnification	12	
		The progressive accumulation of non biodegradable toxic substances/ chemicals	T	

	at each trophic level leading to their maximum concentration at the highest trophic level (human beings) is called biological magnification.	1	3
Q19.	<ul> <li>Fossil : Preserved traces of living organisms are called fossils.</li> <li>Fossils are formed when the body parts of the dead organisms do not decompose completely and are caught up in mud and eventually harden to retain the impression of the body parts.</li> <li>Age of the fossil can be determined by: <ul> <li>(i) Relative method</li> <li>(ii) Carbon dating method</li> </ul> </li> <li>Importance of fossils in the study of evolution: <ul> <li>(i) Help us in knowing about the species which are no longer alive.</li> </ul> </li> </ul>	1 2 <sup>1</sup> / <sub>2</sub> + <sup>1</sup> / <sub>2</sub>	
	(ii) Provide evidence of missing links between two groups of		
	organisms. (any one)	1	5
Q20.	Unisexual Flower : Papaya/ Water-melon/ any other (any one)	1⁄2	
	Bisexual Flower : Hibiscus/ Rose/ any other	1⁄2	
	Self pollination: The pollen grains are transferred from the anther to the stigma of the same flower or to the flower of the same plant	1	
	Cross pollination: The pollen grains are transferred from the anther to the		
	stigma of a flower of a different plant.	1	
	• After potent lands of a suitable signa, a potent tube grows out of potent grain and travels through the style to reach the ovary	16	
	<ul> <li>The male germ cell fuses with the female germ cell to form a zygote.</li> </ul>	<sup>72</sup> 1/2	
	• Zygote divides several times to form an embryo within the ovule	1/2	
	• The ovule develops tough coat and gradually gets converted into a seed	1⁄2	5
Q21.	<ul> <li>Esters: Pleasant smelling organic compounds</li> <li>Formed by the reaction of carboxylic acids and alcohols in the presence of acid. Equation :</li> </ul>	1⁄2 1	
	$CH_{3}COOH + C_{2}H_{5}OH \rightarrow \xrightarrow{ \text{area}  } CH_{3}COOC_{2}H_{5} + H_{2}O$ (Ester)	1	
	• Sodium ethanoate is formed.	1/	
	• $CH_3COOC_2H_5 + NaOH \rightarrow CH_3COONa + C_2H_5OH$	<sup>1</sup> /2	
	Name of Reaction : Saponification	1 1/2	
	• Use : Preparation of soap	1/2	5
Q22.	<ul> <li>a) i) Cornea- To refract the light rays falling on the eye</li> <li>ii) Iris- To control the amount of light entering the eye.</li> <li>iii) Crystalline lens- To focus the incoming rays on the retina.</li> <li>iv) Retina- To act as screen and send signal to the brain via optic nerve</li> </ul>	¹⁄₂ x 4	
	b) Hypermetropia/ Long-sightedness	1	





Q35. A H5 I I I I I I I I I I I I I I I I I I			
	Diagram	1	2
	Labelling	1	2
O36 [a] (i) Smells like vinegar			
(ii) Turns blue litmus red			
[b] (i) brisk effervescence			
(ii) evolution of colourless gas		$\frac{1}{2} \times 4$	2