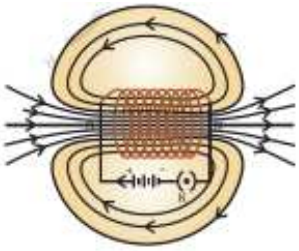
MARKING SCHEME
SECONDARY SCHOOL EXAMINATION TERM–II, 2022
SUBJECT : SCIENCE CODE–086
[PAPER CODE :31/1/1]

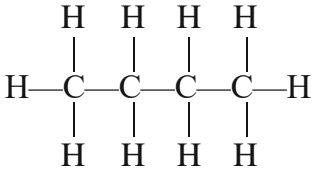
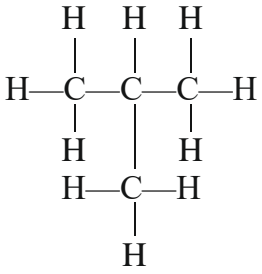
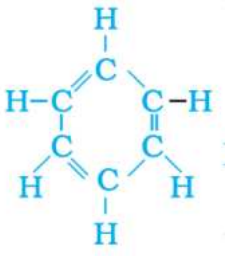
Instructions:-

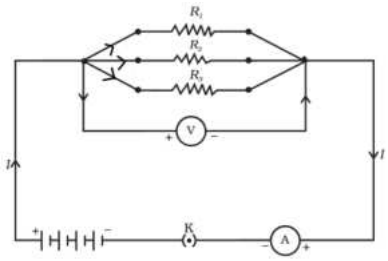
- **The marking scheme carries only suggested value points for the answers.**
- **These are only guidelines and do not constitute the complete answer.**
- **The students can have their own expression and if the expression is correct, the marks are awarded accordingly.**

Maximum Marks : 40

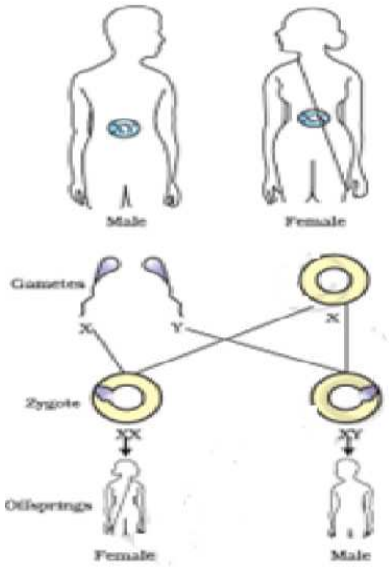
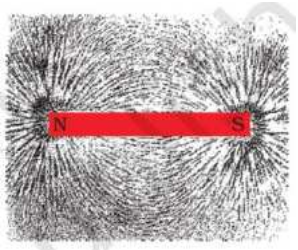
Q. No.	EXPECTED ANSWER / VALUE POINTS	Marks	Total Marks
	SECTION—A		
1.	(a) (i) CH_4 (ii) C_3H_8 (b) Intermolecular forces are weak / not strong	 ½ ½ 1	2
2.	(a) X Y Group Number 1 17 (b) XY (c) X	 ½+½ ½ ½	2
3.	a) Mustard and Hibiscus b) Stamens and Pistil / Carpel	½+½ ½ + ½	2
4.	• Planaria • Regeneration is carried out by specialised cells which are not present in spirogyra. • Hydra	½ 1 ½	2
5.	a) • The differences in the traits shown by the individuals of a species. • Two reasons : i) Inaccurate / Error in DNA copying ii) Sexual reproduction	 1 ½ ½	
5.	b) **OR** (i) F1 Progeny : Violet flowered plants (ii) F2 Progeny : Violet as well as white flowered plants (iii) 25 plants	 ½ 1 ½	2

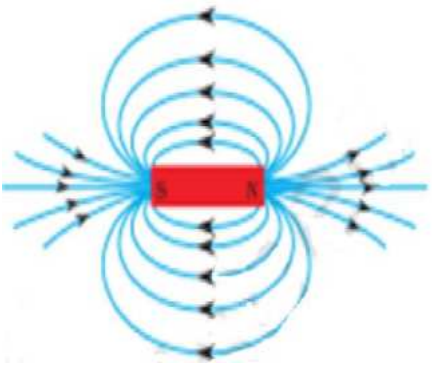
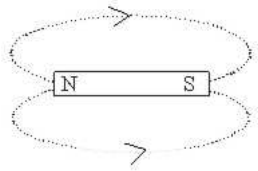
6.	(a) i) • Fleming's left-hand rule • Stretch the thumb, forefinger and middle finger of your left hand such that they are mutually perpendicular. If the first finger points in the direction of magnetic field and the second finger in the direction of current, then the thumb will point in the direction of motion or the force acting on the conductor. ii) South	½ 1 ½	
6.	**OR** b) i) A coil of many circular turns of insulated copper wire wrapped closely in the shape of a cylinder. ii) 	1 1	2
7.	a) • Ozone is a molecule formed by three atoms of oxygen. • UV radiations split some molecular oxygen (O_2) into free oxygen atoms (O + O). These atoms then combine with molecular oxygen to form ozone. / $O_2 \xrightarrow{UV} O + O$ $O + O_2 \rightarrow O_3$ (Ozone) • Ozone layer shields the surface of the earth from damaging UV radiation of the sun. / Depletion of ozone layer causes harmful effects on the organism.	½ 1 ½	
7.	**OR** b) i) Aquarium, crop field, gardens, etc. (any two) ii) A pond is a natural ecosystem. It has decomposers whereas an aquarium is an artificial ecosystem and does not contain decomposers. Therefore it needs regular cleaning for proper functioning.	½+½ 1	2
	SECTION—B		
8.	(a) • Atomic number is more fundamental property and it decides the properties of an element.		

	• Atomic number increases by one in going from one element to the next, so arrangement of elements becomes more systematic. • Prediction of properties of elements could be made with more precision when the elements are arranged in increasing order of their atomic numbers. **(Any two)**	1+1	
	(b) Electronic configuration of X - 2, 8, 3 Electronic configuration of Y - 2, 8, 8, 2	½ + ½	3
9.	a) • 	½	
	• 	½	
	• Isomers • C_4H_{10} • Butane • C_4H_6	½ ½ ½ ½	
	OR		
9.	b)		
	i) • C_6H_6	½	
	• 	½	
	ii)		
	• Single bond 9 • Double bond 3	½ ½	
	iii) Hydrocarbons containing triple bond	1	3

10.	(a) (i) Testis—To produce male gametes or sperms / To produce testosterone or male sex hormone (ii) To provide lower temperature for sperm formation (iii) Vas deferens—Transport of sperms (iv) Prostate gland— Secretion of fluid for easier transport and nutrition of sperms (b) (i) Sperm (ii) Egg / Ovum	½ x 4 ½ ½	3
11.	(a)  Circuit diagram with given components Direction (b) Resistance between *C* and *D* is given by $\frac{1}{R_{CD}} = \frac{1}{10} + \frac{1}{10} = \frac{2}{10} = \frac{1}{5}$ $R_{CD} = 5\ \Omega$ *D* and *B* = $R_4 = 5\ \Omega$ ∴ Total resistance is $R_S = R_{CD} + R_1 + R_4$ $R_{total} = 5\ \Omega + 5\ \Omega + 5\ \Omega$ $= 15\ \Omega$	1 ½ ½ ½ ½	3
12.	(a) (i) The rate at which electric energy is dissipated or consumed in an electric circuit. S.I. unit—watt / V. A / joule per second (ii) • Current drawn by first bulb $I_1 = \frac{100\ \text{W}}{220\ \text{V}} = \frac{100}{220}$ ampere • Current drawn by second bulb	½ ½ ½	

	$I_2 = \frac{60\text{ W}}{220\text{ V}} = \frac{60}{220}$ ampere	½	
	Both the bulbs are in parallel	½	
	Total current, $I = I_1 + I_2$	½	
	$= \left(\frac{100}{220} + \frac{60}{220}\right)$ ampere $= \frac{160}{220}\text{ A} = 0{\cdot}73\text{ A}$		
	(Accept any other method)		
	OR		
12.	(b) i) This law states that heat produced in a resistor is—		
	• directly proportional to the square of current for a given resistance / *($H \propto I^2$)*		
	• directly proportional to the resistance for a given current / *($H \propto R$)*		
	• directly proportional to the time for which the current flows through the resistor / *($H \propto t$)*	1	
	• $H = V\,I\,t$	½	
	ii) $V = 6\text{ V};\ R = 5\ \Omega;\ t = 10\text{ s}$ Energy dissipated as heat in t = 10 s is $H = \frac{V^2}{R}t$	½	
	$= \frac{(6\text{ V})^2}{5\ \Omega} \times 10\text{ s}$	½	
	$= 72\text{ J}$	½	3
13.	(a) Producers, as they can manufacture food by the process of photosynthesis.	½ + ½	
	(b) When non-degradable harmful chemicals (pesticides / DDT, etc.) enter a food chain, they get progressively accumulated at each trophic level. Human beings occupy the top level in any food chain, therefore the maximum concentration of these chemicals get accumulated in their bodies.	1	
	(c) Ill effects of absence of decomposers from natural ecosystem :		
	(i) Earth would be covered with dead bodies & foul smell		
	(ii) Recycling of minerals will not take place		

	(iii) Soil will not get replenished (iv) Ecosystem will get disrupted **(any other relevant point) (any one)**	1	3
	SECTION—C		
14.	(a) • XY • Y is shorter than X (b) • Mother/Female • Same kind (c) i) • Reptiles & Snails • In reptiles, the temperature at which fertilised eggs are kept determines whether the animal developing in the eggs would be a male or a female. In snails, they can change their sex during their life time. **OR** (c) ii)  Diagram Labelling	½+½ ½+½ ½ + ½ ½ ½ 1 1	4
15.	(a)  	1	

	(b) 	1	
	(c) i) • By placing a compass needle on magnetic field lines, direction of north pole will give direction of magnetic field.	1	
	• If they cross or intersect , it means that at the point of intersection the compass needle would point into two directions, which is not possible. / If they cross or intersect, it means that at the point of intersection there will be direction of two resultant fields which is not possible.	1	
	OR		
	(c) ii) • Take a small bar magnet, place it in the centre of the drawing sheet fixed on a drawing board and mark its boundary.	½	
	• Place a small compass needle near the north pole of the magnet, south pole of the compass needle points towards the north pole.	½	
	• Mark the position of two ends of the needle. Now move the needle to a new position such that the south pole of needle occupies the position previously occupied by the north pole and again mark the new position of the north pole. In this way proceed step by step till you reach the south pole of the magnet. Join the points marked to get a field line. Similarly draw one more field line on the other side of the magnet.	½	
	• 	½	4

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