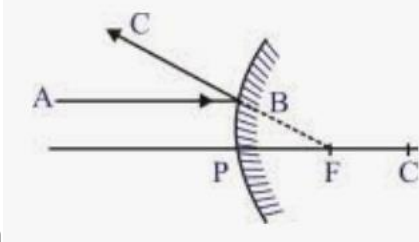


SET A

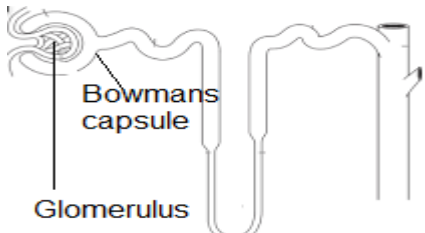
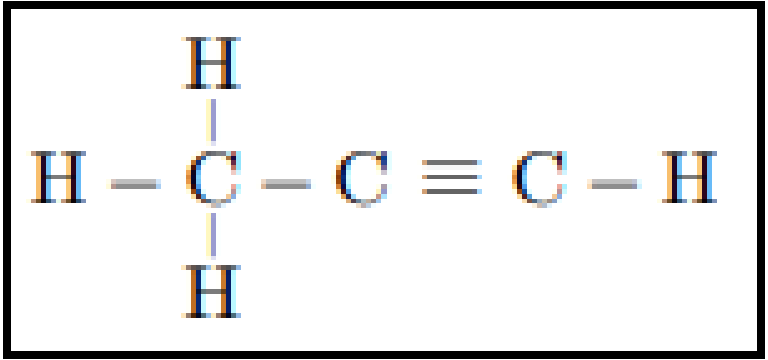
Marking Scheme – SCIENCE

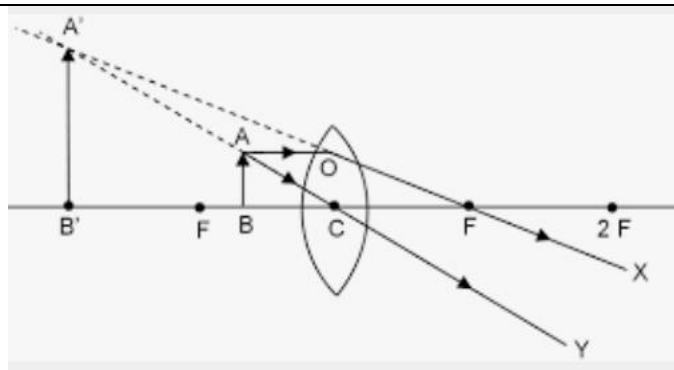
SECTION - A		
Q.NO.	VALUE POINTS	
1.	Rusting Hydrated ferric oxide -1/2 mark each OR Photolytic decomposition reaction	
2.	CH_3COOH , H_2CO_3	
3.	b.7 covalent bonds	
4.	The phenomenon by which the colloidal particles scatter light is called Tyndall effect .	1
5.	Between P and F	1
6.	 <p>Completed ray diagram</p> <p>OR</p> <p>When a ray of light travels from one medium to another, its speed changes and this in speed of light causes the bending of light (refraction of light)</p>	1
7.	P- North and Q-South	$\frac{1}{2} + \frac{1}{2}$
8.	Fleming's left hand rule	1
9.	(i) Wire crossing (ii) variable resistor or rheostat OR Conventional direction of electric current is opposite to the direction of flow of electrons	$\frac{1}{2} + \frac{1}{2}$ 1
10.	Veins have blood flowing under low pressure so they are thin walled and the presence of valves prevents back flow of blood.	
11.	The wave like muscular contraction that helps to push forward food in the alimentary canal is Peristalsis. OR In the cytoplasm... Pyruvate	

12.	Male gamete is produced in testis, has mobility, has a head and a tail, produced thousands in number. Female gamete is produced in ovaries, one of the largest cell, immotile, single egg is produced once in one menstrual period (any 2) OR Vasa deferens, Urethra	
13.	Bio magnification. Harmful chemicals that are used to protect the crops are absorbed by plants and enter the food chains. These get accumulated and increase in concentration at higher trophic levels.	
14.	C	
15.	b) Both A and R are true, but R is not the correct explanation of the assertion.	
16.	d) A is false, but R is true.	
17.	BIOLOGY- CASE BASED QUESTIONS	1x4
	i) b) 10 %	
	ii) a) heat energy	
	iii) d) 5000 kJ	
	iv) c) decrease in energy	
	v) d) forest	
18.	CHEMISTRY- CASE BASED QUESTIONS	1x4
	i) a	
	ii) a	
	iii) c	
	iv) b	
	v) d	
19.	PHYSICS- CASE BASED QUESTIONS	1x4
	i) D	
	ii) D	
	iii) D	
	iv) C	

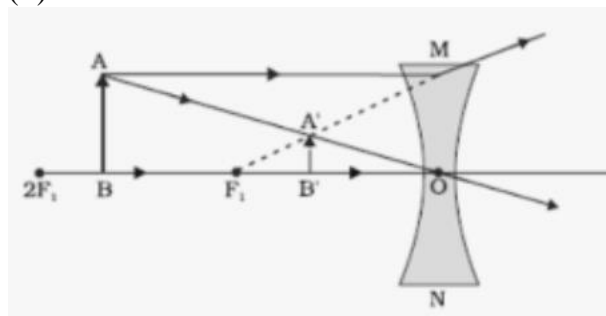
	v) A	
20.	PHYSICS- CASE BASED QUESTIONS	1x4
	i) D	
	ii) C	
	iii) A	
	iv) C	
	v) B	
SECTION - B		
21.	<p>Bile plays a major role in Digestion as it makes the acidic food coming from the stomach alkaline so that pancreatic enzymes could function. Bile also emulsifies the fat molecules by breaking them into smaller globules.</p> <p>OR</p> <p>The left and right side of heart is separated by septum. This ensures that there is efficient supply of oxygen to the body. Birds and mammals are warm blooded animals and need high energy to maintain their body temperature.</p>	2
22.	It is the force that blood exerts against the wall of a vessel. The pressure of blood inside artery during contraction or ventricular systole is called systolic pressure and pressure in artery during relaxation or ventricular diastole is called diastolic pressure. The normal systolic pressure is about 120 mm of Hg and diastolic pressure is 80 mm of Hg.	2
23.	<p>1 mark each</p> <p>OR</p> <p>1/2 mark each</p>	2
24.	<p>A-Ferrous sulphate crystals B-Fe₂O₃ 1/2 mark each</p> <p>Chemical eqn-1 mark</p>	2
25.	<p>Planets being of larger size can be taken as a collection of large number of point-sized objects/sources of light, which nullify the twinkling effect of each other.</p> <p>Due to varying conditions of atmosphere, starlight undergoes multiple refraction and its path varying slightly while passing through the atmosphere. Therefore, the apparent position of star fluctuates and amount of light entering the eye changing continuously. The star sometimes appear brighter and some other time, it appears fainter. This causes twinkling of star.</p>	1+1
26.	<p>When length of wire is doubled i.e. $l'=2l$</p> <p>Also it's area of cross section becomes half i.e $A/2$</p> <p>Resistance $R=\rho l/A=20\Omega$</p> <p>New Resistance ,</p> <p>$R'=\rho l'/A'=\rho(2l)/(A/2)$</p> <p>$=4(\rho l/A)=4\times 20=80\Omega$</p>	<p>1/2</p> <p>1/2</p> <p>1/2</p> <p>1/2</p>

SECTION - C

27.	<p>Breaking down of glucose involves two processes. In the first step, it is broken into three carbon molecules called pyruvate, which is further broken down to release energy –</p> <p>1) Aerobic respiration: pyruvate is broken down into water and carbon dioxide along with release of energy. It commonly occurs in mitochondria of cells.</p> <p>2) Anaerobic respiration in yeast: In yeast cells during fermentation pyruvate is converted into ethanol and CO₂ in the absence of O₂.</p> <p>3) Anaerobic respiration in muscles: Due to lack of oxygen, eg. during vigorous running or exercise, in human muscles, pyruvate is converted to lactic acid.</p> <p>OR</p> <p style="text-align: center;">Diagram(1 mark) labelling (1 mark)</p>  <p style="text-align: center;">Glucose gets reabsorbed into the blood in the tubular part(1)</p>	3
28.	<p>(a) All plants of F₁ generation will be tall plant. (1/2)</p> <p>(b) 3 : 1; 1:2:1 (1/2 +1/2)</p> <p>(c) 1:1 (1/2)</p> <p style="text-align: right;"> Parent TT X tt F₁ Tt Tt X Tt F₂- TT,Tt,Tt, tt (cross 1 mark) </p>	3
29.	a)hyphae b) Regeneration c)Plasmodium	3
30.	<p>Saturated Hydrocarbon: All alkanes.</p> <p>Unsaturated Hydrocarbon: All alkenes and Alkynes. 1</p> <p>(b) C₂H₄ and C₄H₈ are alkenes, C₃H₄ and C₂H₂ are alkynes ½ mark each</p> <p>(c) Hydrocarbon is C₃H₄ ½ mark each</p> <div style="border: 2px solid black; padding: 10px; text-align: center; margin: 10px 0;">  </div> <p>Structure of C₃H₄ is</p>	3
31.	<p>Diagram-1 mark</p> <p>Ionic bond -1 mark</p> <p>Two properties -1/2+1/2</p>	3
32.	1 mark each for explanation	3
33.	(i)	1 ½



(ii)



1 ½

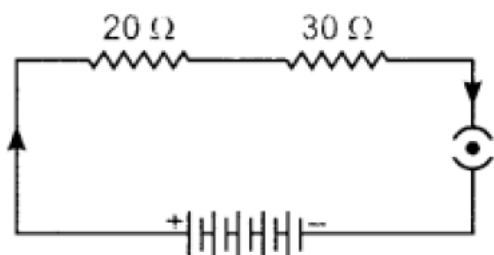
SECTION - D

34.

(i) $H = VIt$

(ii) Resistance decreases

(iii)



5 cells, 2 V each

$$R_{eq} = 20 + 30 = 50 \, \Omega$$

$$\text{Current through both } 20\Omega \text{ and } 30\Omega = I = 10/50 = 0.2 \, \text{A}$$

$$\text{Power consumed by } 30\Omega = I^2 R = (0.2)^2 \times 30 = 1.2 \, \text{W}$$

OR

(i) The wire used in the element of electric heater has a high resistivity and have a high melting point, i.e. even at a high temperature element do not burn while fuse wire have a low melting point and high resistivity.

1

1

1

½

½

½+½

1

1

1

	<p>Series combination of 1 Ω and 3 Ω resistance is in parallel combination with 6 Ω. Their equivalent resistance is</p> $\frac{1}{R_p} = \frac{1}{6} + \frac{1}{3+1} = \frac{1}{6} + \frac{1}{4} = \frac{2+3}{12}$ $\therefore R_p = \frac{12}{5} = 2.4 \Omega$ <p>Now, 3.6 Ω 2.4 Ω and 3 Ω are in series, their equivalent resistance be</p> $R_s = R_1 + R_2 + R_3$ $= 3.6 + 2.4 + 3 = 9 \Omega$ <p>Hence, the current flowing through the circuit is</p> $I = \frac{V}{R} = \frac{4.5}{9} = \frac{45}{90} = \frac{1}{2} = 0.5 \text{ A.}$	<p>1</p> <p>$\frac{1}{2} + \frac{1}{2}$</p>
35.	<p>(a) Acids are those chemical substances that have a sour taste. Example: Acetic acid and citric acid.</p> <p>Base is a chemical substance that has a bitter taste. Example: Caustic soda and washing soda.</p> <p>(b) Strong bases – Sodium hydroxide (NaOH), potassium hydroxide (KOH). Weak bases – Calcium hydroxide (Ca (OH)₂), ammonium hydroxide (NH₄OH).</p> <p>(c)</p> <p>(i) When an acid is dissolved in water Hydrogen ions are found. (ii) When a base (or alkali) is dissolved in water Hydroxide ions are found.</p> <p>(d) Neutralisation reaction between acids and bases:</p> <p>(e) i. A weak acid has a low concentration of H⁺ ions. For example, Acetic acid. ii. Dilute acid: A dilute acid is a solution where acid is dissolved in a more volume of water than that of acid.</p> <p>OR</p> <p>a) H₂SO₄ test tube i.e A will show more vigorous reactions -1/2mark b) Since acidic strength of H₂SO₄ is more than H₂CO₃ -1/2mark c) Mg+H₂SO₄→MgSO₄+H₂(g) Mg+H₂CO₃→MgCO₃+H₂(g) The liberated gas is H₂ and it burns with popping sound. -1 mark d) Mg+H₂SO₄→MgSO₄+H₂(g) Mg+H₂CO₃→MgCO₃+H₂(g) -2 marks e) i) Since H₂SO₄ is more acidic, it will have lower pH value. ii) Test tube B will have lower H⁺ concentration as H₂CO₃ is a weak acid.—1/2 mark each</p>	5

36.	<div data-bbox="237 176 613 373" data-label="Image"> </div> <p data-bbox="613 346 1045 378">Diagram (1), 1 ½ for labelling 3 parts</p> <p data-bbox="237 380 1429 449">b) Testis are located outside the abdominal cavity inside the scrotum in a human male. The scrotum provides optimum temperature for the production of sperms (1)</p> <p data-bbox="237 451 1404 554">c) After fertilisation a disc shaped tissue called placenta develops on the uterine wall, where the nutrients, glucose and oxygen is supplied through the mother's blood takes place. The developing embryo, also produces waste which are removed into the mother's blood through the placenta.(1)</p> <p data-bbox="237 556 1446 632">d) To increase the gap between two children/ prevent unwanted pregnancy / prevent transmission of STD /control population growth(any 1) (1/2 mark)</p>	5