INDIAN SCHOOL MUSCAT

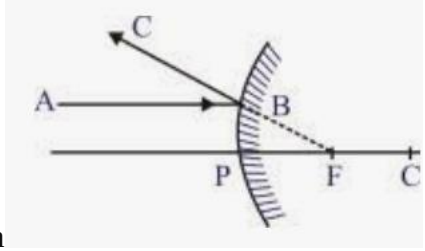
SECOND PRE-BOARD EXAMINATION

SET C

APRIL 2021

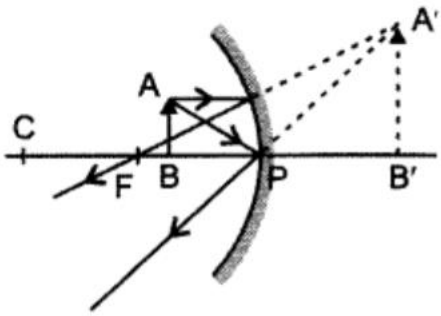
CLASS X

Marking Scheme – SCIENCE [THEORY]

SECTION - A		
Q.NO.	**VALUE POINTS**	
1.	Beaker B Or Photochemical decomposition	
2.	Covalent compounds are formed by sharing electrons. When the electrons are shared within the bonds, there is no electrons available to conduct electricity -	
3.	d	
4.	Between P and F	1
5.	The **scattering of light** is the phenomenon by which a beam of **light** is redirected in different directions on interacting with the particles present in the medium.	1
6.	Completed ray diagram  OR **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)**	1 1
7.	Outside the solenoid magnetic field is minimum. At the ends of solenoid, magnetic field strength is half to that inside it. So Minimum – at point B; Maximum – at point A	½+½
8.	Fleming's right hand rule	1
9.	(i) Closed switch (ii) a resistor of resistance R OR The **graph will** be a straight line	½+½ 1
10.	a) Xylem b) Phloem	

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 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.	Biomagnification. 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.	a	
15.	d) A is false, but R is true.	
16.	b) Both A and R are true, and R is not the correct explanation of the assertion.	
17.	Same as set A	1x4
18.	Same as set A	1x4
19.	PHYSICS- CASE BASED QUESTIONS	1x4
	(i)D	
	(ii)C	
	(iii) A	
	(iv) C	
	(v) B	
20.	PHYSICS- CASE BASED QUESTIONS	1x4
	(i)D	
	(ii)D	
	(iii)D	
	(iv)C	
	(v) A	
SECTION - B		

21.	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 OR Even after forceful expiration there is some amount of air in our lungs called residual air. So the lungs don't collapse. During Exhalation the diaphragm relaxes and comes back to its normal state reducing the chest cavity.	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.	PbO is Lead (II) Oxide is reduced and C is oxidised substance SR=MnO2 SO=HCl(½ mark each) Or A-Ferrous sulphate crystals B-Fe2O3 ½ mark each Chemical eqn-1 mark	2
24.	Definition-1 mark C_3H_6 , C_5H_{10}, -1/2 mark each	2
25.	Resistance of each part $= \frac{R}{3} = \frac{9}{3} = 3\ \Omega$ $\therefore \quad R_1 = R_2 = R_3 = 3\ \Omega$ In parallel combination, $\frac{1}{R_P} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$ $= \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{3}{3} = 1$ $\therefore \quad R_P = 1\ \Omega$	1 ½ ½
26.	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. 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.	1+1
SECTION - C		
27.	Same as set A	3
28.	Same as set A	3
29.	a)Sporangiophore b) Fragmentation c)Amoeba/ Leishmania/Paramecium	3
30.	Each reasons-1 mark	3
31.	1 mark each	3

32.	a)Ion formation & Diagram-2 mark b)1 mark	3
33.	(i) 2 rays (ii)  (ii) Speed of light in carbon disulphide is 1/1.63 times the speed of light in free space.	½ 1 ½ 1
	SECTION - D	
34.	(i)a schematic diagram of a circuit consisting of a battery of 4 cells of 2V each connected to a key, an ammeter and two resistors of 2 Ω and 3 Ω respectively in series and a voltmeter to measure potential difference across 3 Ω. (ii)The resistivity of nichrome is more than that of copper so its resistance is also high. Therefore, large amount of heat is produced in the nichrome wire for the same current as compared to that of copper wire. Accordingly, more change in temperature is observed in the nichrome wire. This is explained by Joule's law of heating. Joule's law of heating: It states that the amount of heat produced in a conductor is (*i*) directly proportional to the square of current flowing through it, i.e. $H \propto I^2$. (*ii*) directly proportional to the resistance offered by the conductor to the current, i.e. $H \propto R$ (*iii*) directly proportional to the time for which current is flowing through it, i.e. $H \propto t$ Combining these, we get $H \propto I^2Rt$ *or* $H = KI^2Rt$ where K is proportionality constant and in SI system, it is equal to one. **OR** (a) Bulbs in parallel provide more illumination. This is because (a) each bulb gets same voltage and is equal to the applied voltage. (b) each bulb draws required current from the mains. Hence, they work properly. (ii)When one bulb in each circuit get fused, In series: Rest of the bulbs will not glow. This is because in series arrangement,	2 1 ½ ½ 1 ½ ½

	there is only a single path for the flow of current. In parallel: Rest of the bulbs will continue to glow as in parallel connection, (a) individual branch in the circuit completes its own circuit, or (b) different paths are available for the flow of current. (b) (a) Since R and 6 Ω resistors are in series, same current flows through them, i.e., Current 'I' through the resistor can be written as (6V / R) I = V / R $\frac{6V}{R} = \frac{12V}{6\Omega} \Rightarrow R = 3\Omega$ (ii) Ammeter reading will be same as current through R, i.e. $\frac{6V}{3\Omega} = 2A$ (iii) Potential difference across the battery terminals is 6V + 12V = 18V	½ ½ 1 1 1
35.	a) H_2SO_4 test tube i.e A will show more rigorous reactions -1/2mark b) Since acidic strength of H_2SO_4 is more than H_2CO_3 -1/2mark c) $Mg+H_2SO_4 \rightarrow MgSO_4+H_2(g)$ $Mg+H_2CO_3 \rightarrow MgCO_3+H_2(g)$ The liberated gas is H_2 and it burns with popping sound. -1 mark d) $Mg+H_2SO_4 \rightarrow MgSO_4+H_2(g)$ $Mg+H_2CO_3 \rightarrow MgCO_3+H_2(g)$ -2 marks e) i) Since H_2SO_4 is more acidic, it will have lower pH value. ii) Test tube B will have lower H^+ concentration as H_2CO_3 is a weak acid.—1 mark OR a) **Chemical name** of **Plaster of Paris** is Calcium sulphate hemihydrate. **Chemical formula of Plaster of paris** = CaSO4. 1/**2** H2O. -1mark (**b**) When it is mixed **with water**, crystals of gypsum are produced and set into hard mass./chemical equation -1 mark Uses-1 mark A-calcium oxy chloride , bleaching powder (1/2 mark each) Preparation -1 mark (either in words or in chemical equation)	5
36.	Same as set A	5