INDIAN SCHOOL MUSCAT

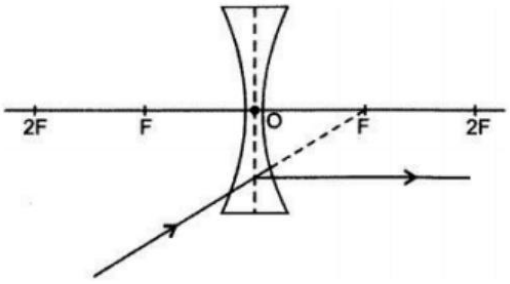
SECOND PRE-BOARD EXAMINATION

SET B

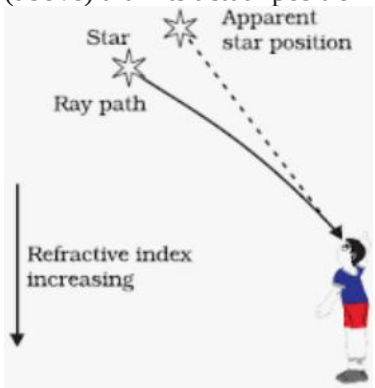
APRIL 2021

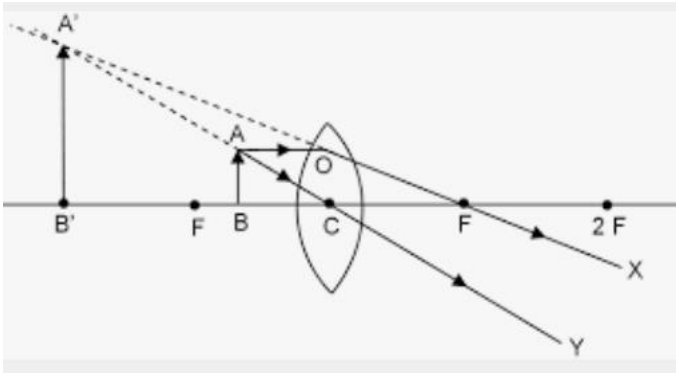
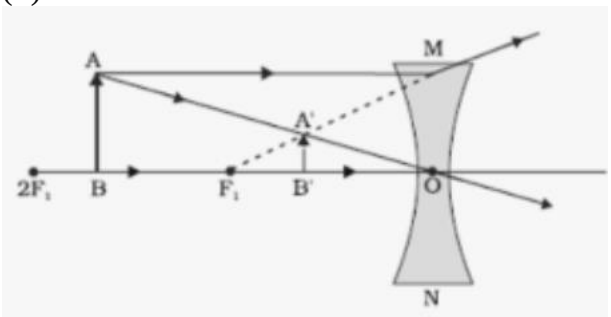
CLASS X

Marking Scheme – SCIENCE

SECTION - A		
Q.NO.	**VALUE POINTS**	
1.	Exothermic/Redox/Displacement reaction -1/2 mark Reason-1/2 mark Or Ag_2S , Silver sulphide ½ mark each	
2.	CH_3COOH , H_2CO_3	
3.	b	
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 The **absolute refractive index** is **defined** as the ratio of the speed of light in vacuum and in the given medium.	1 1
7.	P- North and Q-South	½+½
8.	Fleming's left 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) Aorta b) Pulmonary Artery	
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.	a) Both A and R are true, and R is correct explanation of the assertion.	
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.	HCl- It kills microorganisms in food and creates an acidic medium for the pepsin to become activated. Pepsin- It digests proteins and breaks them into simple substances, amino acids.	2

	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.	
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.	1 mark each	2
24.	A=Mg B=MgO ½ mark each Balanced eqn -1 mark	2
25.	The gradual change in the refractive index of different layers of the atmosphere due to the varying conditions of it causes atmospheric refraction. When starlight enters the atmosphere, it gets refracted continuously. The higher level of air acts as a rarer medium while the dense air near the surface of earth acts as a denser medium. So, the atmosphere bends the starlight towards the normal. As a result, the apparent position of star is slightly different from its actual position. Thus, star appears slightly higher (above) than its actual position in the sky.  	1 1/2 +1/2
26.	When length of wire is doubled i.e. $l'=2l$ Also it's area of cross section becomes half i.e A/2 Resistance $R=\rho l/A=20\Omega$ New Resistance , $R'=\rho l'/A'=\rho(2l)/(A/2)$ $=4(\rho l/A)=4\times20=80\Omega$	½ ½ ½ 1/2
	SECTION - C	
27.	Same as set A	3
28.	(a) The colour of all flowers in F1 generation is blue. (1/2) (b) Percentage of white flower plants in F2 generation will be 25%. (1) (c) The ratio of genotypes BB and Bb in F2 progeny will be 1 : 2. (1/2) Parent BB X bb F1 - Bb Bb X Bb F2- BB,Bb,Bb,bb (1)	3
29.	a) Sporangiophore b) Fragmentation c)Amoeba/ Leishmania/Paramecium	3
30.	1 mark each	3

31.	a)Ion formation and diagram -2 marks b)reason-1mark	3
32.	I mark each	3
33.	(i)  (ii)  	1 ½ 1 ½
	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	2 1 ½ ½ 1

	(*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, 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 ½ ½ 1 1 1
35.	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) OR a)name acid and base for the two salts -1/2 mark each b)i) When an acid is dissolved in water Hydrogen ions are found.-1/2 mark (ii) When a base (or alkali) is dissolved in wate Hydroxide ions are found. -1/2 mark	5

	(c) Neutralisation reaction between acids and bases: 1 mark (d) 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. (1/2+1/2)	
36.	Same as Set A	5