INDIAN SCHOOL MUSCAT

FIRST PRE-BOARD EXAMINATION

SET A

February 2021

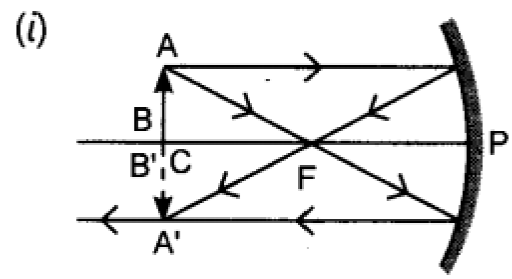
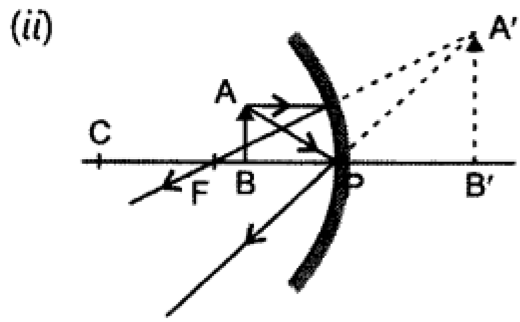
CLASS X

Marking Scheme – SCIENCE

SECTION - A		
Q.NO.	**VALUE POINTS**	
1.	Baking soda & tartaric acid Or Sodium carbonate	1
2.	Heat is released along with the formation of products.	1
3.	a	1
4.	Blue colour having shorter wavelength is scattered most	1
5.	m = -v/u -2 = -v/-10 V = -20 cm	1
6.	Concave mirror, concave lens OR Concave mirror, convex mirror	1
7.	The Thumb represents the direction of Thrust on the conductor (force on the conductor). The Fore finger represents the direction of the magnetic Field. The Center finger (middle finger) the direction of the Current.	1
8.	Intersecting point shows two directions, which is not possible	1
9.	In order to get 5 ohm, resistance 3 ohm should be connected in series with the parallel combination of 3 ohm and 6 ohm. OR Resistivity of an alloy is greater than that of pure metal It has high melting point , does not oxidise	1
10.	1. Temperature regulation 2. To remove excess water from the plant. (1/2 X 2=1)	1
11.	To synthesize the molecule called ATP which is used as a fuel for all other activities of the cell. (1 mark) OR Pancreatic amylase, lipase / trypsin(any two) (½ X2=1 mark)	1
12.	Natural product, Biodegradable , ecofriendly, non-toxic (any two) (½ X2=1 mark) OR According to ten percent law, the energy transferred will reduce when we go from one trophic level by 10%. So no energy will be left if the level exceed(1mark)	1

13.	Haemoglobin / transports oxygen	1
14.	b	1
15.	a. Both A and R are true, and R is correct explanation of the assertion.	1
16.	a. Both A and R are true, and R is correct explanation of the assertion.	1
17.	BIOLOGY- CASE BASED QUESTIONS	1x4
	i)b	
	ii)c	
	iii)c	
	iv)a	
	v)d	
18.	CHEMISTRY- CASE BASED QUESTIONS	1x4
	i)a	
	ii)d	
	iii)d	
	iv)b	
	v)b	
19.	PHYSICS- CASE BASED QUESTIONS	1x4
	i) A.	
	ii) A	
	iii) B	
	iv) D	
	i) v) B	
20.	PHYSICS- CASE BASED QUESTIONS	1x4

	i) A	
	ii) A	
	iii) D	
	iv) C	
	v) B	
	SECTION - B	
21.	Aerobic-high energy End products-carbon di oxide, water, energy (½ X2=1 mark) Anaerobic-low energy End products-lactic acid, energy (ethanol and carbon di oxide in yeadt) (½ X2=1 mark) OR For the exchange of materials and diffusion of gases like co2 and o2. (1X2=2 marks).	2
22.	Removal of toxic metabolic waste Osmoregulation (1X2=2 marks)	2
23.	(i) C is oxidised to CO and ZnO is reduced to Zn. (ii) Na is oxidised to Na_2O and O_2 is reduced. OR (i) A yellow precipitate of lead iodide appears at the bottom of the test tube. (ii) It is an example of double displacement reaction.	2
24.	Any two limitation-1mark each	2
25.	Early in the morning, the sun is near the horizon. Shorter wavelength of blue region are almost completely scattered away by the air molecules. Red waves of longer wavelength are least scattered and reach our eyes. The sun appears red	2
26.	R= V/I = 30/7.5 =4 OHM ¼ =1/10 +1/12+1/X X= 15 OHM	2
	SECTION - C	
27.	Crossing -2 marks Phenotypic ratio-3:1-1/2 mark Genotypic ratio-1:2:1-1/2 mark OR Inaccuracies occurring during copying of DNA- 1 mark Explanation-2 marks	3
28.	Food chain is the interdependence of animals by eating and being eaten With any example of food chain explain- Example -1 mark Explanation-2marks	3

29.	1. To provide sufficient supply of energy to maintain body temperature-1 mark 2. They don't move and most cells aredead.-1 mark 3. To prevent the collapse when there is no air-1mark.	3
30.	i)D ii)B iii)D is bigger in size as atomic size decreases across a period due to increase in effective nuclear charge.	3
31.	(i)B is the most reactive metal. (ii)B will displace Cu from $CuSO_4$. (iii)B>A>C>D	3
32.	Isomers definition-1mark Two strucures-1/2 mark each Two names- 1/2 mark each	3
33.	 REAL INVERTED, SAME SIZE AS THE OBJECT,IMAGE AT C 1 MARK -RAY DIAGRAM, ½ MARK STATEMENT  VIRTUAL ERECT, ENLARGE,BEHID THE MIRROR 1 MARK -RAY DIAGRAM,1/2 MARK STATEMENT	3
	SECTION - D	
34.	a) rate of flow of charge ½. Unit ampere ½ b) (i) E = PXT = =400 WX 10 h= 4KWH 1 (ii) E = PXT = 2X 80 W X12 h=1920= 1.92KWH 1 (iii)E =PXT = 6X18 WX 6 h = 684 WH = 0.648 KWH 1 Total energy consumed in one day =4+1.92+0.648=6.568kwh Total energy consumed in one month =6.568X30 = 197.04 kwh ONE UNIT = 3 RS 197.04 X 3 = 591.12 RS 1 OR	5

	a) Effective resistance between X'Y' which are in parallel $$\frac{1}{R_1} = \frac{1}{12} + \frac{1}{6} + \frac{1}{3} = \frac{1+2+4}{12} = \frac{7}{12}$$ $$R_1 = \frac{12}{7}\Omega$$ $V = 6V$ $I = 0.4\ A$ Total resistance in circuit $= R = \frac{V}{I} = \frac{6}{0.4}$ $$R = \frac{60}{4} = 15\Omega$$ $$\therefore \quad 2\Omega + \frac{12}{7}\Omega + X = 15$$ X = 11.28 ohm b) (i) Resistivity – since the Resistivity is a property of a substance hence it remains the same for both the wires. 1/2 (ii) Resistances – As both the wires are of different cross sectional areas, so both wires are considered as different objects. ½ c) Series arrangement is not used for domestic circuits as current to all appliances remain same in spite of different resistance and every appliance cannot be switched on/ off independently. 1	3
35.	**(a)** The solution with pH 7 is neutral. **Its pH can be increased by adding a small amount of base** like sodium hydroxide. Basic solutions have pH more than 7. Similarly, **pH can be decreased by adding small amount of acid** like hydrochloric acid. Acidic solutions have pH less than 7. (b) The change in colour of litmus from red to blue indicates that **the solution is of basic nature with pH more than 7.** (c) Carbon dioxide can be liberated by reacting sodium carbonate solution with acid like dilute hydrochloric acid. This shows that **the solution is of acidic nature with pH less than 7.** (d) pH will increase upon dilution/ pH is more for dil.HCl (e) Hydrogen gas would evolve , burning candle extinguished with a pop sound (1/2+1/2) OR (a)(i) The gas 'X' is H_2 and gas 'Y' is Cl_2 (ii) The chemical equation for the reaction is :	5

	$$2\,NaCl(aq) + 2H_2O(l) \xrightarrow{\text{(Electric current)}} \underset{(X)}{2NaOH(aq)} + \underset{(Y)}{H_2(g)} + Cl_2(g)$$ (iii) Cl_2 reacts with slaked lime to form bleaching powder. $Ca(OH)_2 + Cl_2 \longrightarrow CaOCl_2 + H_2O$. (b) Sodium hydrogen carbonate ($NaHCO_3$) is sparingly soluble or less soluble in water and gets separated as a precipitate while NH_4Cl remains in solution. The precipitate is **removed by filtration**. (c) Sodium hydrogen carbonate is converted to sodium carbonate upon heating. $$2NaHCO_3 \xrightarrow{\text{heat}} Na_2CO_3 + H_2O + CO_2$$	
36.	I. Diagram-1 mark Parts- ½ x 4=2 marks II. fragmentation leaf bud multiple fission budding - ½ X 4= 2 marks	5
	End of the Question Paper	