

<b>SET</b>	<b>A/B/C</b>
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**INDIAN SCHOOL MUSCAT  
PRE BOARD EXAMINATION 2023  
CHEMISTRY (043)**

CLASS: XII

Max.Marks: 70

26/11/23

<b>MARKING SCHEME</b>			
<b>SET</b>	<b>QN.NO</b>	<b>VALUE POINTS</b>	<b>MARKS SPLIT UP</b>
A	1)	c	1
	2)	a	1
	3)	b	1
	4)	c	1
	5)	a	1
	6)	b	1
	7)	b	1
	8)	a	1
	9)	c	1
	10)	c	1
	11)	d	1
	12)	c	1
	13)	A	1
	14)	C (or) E	1
	15)	C	1
	16)	E	1

	17)	$E_a = \frac{0.6021 \times 2.303 \times 8.314 \times 293 \times 313}{20}$ $= 52863.33 \text{ J mol}^{-1}$ $= 52.86 \text{ kJ mol}^{-1}$	1 1
	18)	$\Delta Tb = \frac{3 \times 0.512 \times 10 \times 1000}{111 \times 200} = 0.6918 \text{ K}$	1 1
	19)	(a) 6-chloro-4-ethylhexan-3-one  (b) Toluene is formed	1 1
	20)	A &b) Correct reasons	1 1
	21)	Correct structure  OR  Correct reason	1+1  1+1
	22)	(a) $E_{cell} = 2.71 - 0.0295 = 2.68 \text{ V}$ (b) Any two advantages of fuel cell	2 1
	23)	(a) $ST t_{99\%} = 2t_{90\%}$ (b) Zero order	2 1
	24)	(a) d2sp3, Octahedral, Paramagnetic, low spin	1+1+1
	25)	(a) Aminoacids (b) Sugar, base, phosphoric acid (c) B-D-galactose and $\beta$ -D-glucose	1x3
	26)	Correct equations	1x3
	27)	(a) 2-bromobutane (b) 1-bromobutane  (c) 2-bromo2-methylpropane & 1-bromo2-methylpropane	1x3
	28)	(a) A = $C_6H_5COCl$ B = $C_6H_5CHO$ C and D = $C_6H_5COONa$ (or) $C_6H_5CH_2OH$ (a) Tollens test (or) iodoform test  OR Correct eqnations	1 1 1
	29)	(a) $E_{cell} = -0.59 \text{ V}$ (b) Correct reaction (c) Molar conductivity = $49.5 \text{ S cm}^2 \text{ mol}^{-1}$ - 1 Degree of dissociation = $49.5/390 = 0.126$ - 1  OR	1 1 2

		(i) 1930 seconds (or) 32.16 minutes (ii) 1=HCl 2=NaCl 3=NH <sub>4</sub> OH	1 1
	30)	(a) Amminequadichloridoplatinum(II) - 1 (b) [Cr(H <sub>2</sub> O) <sub>6</sub> ]Cl <sub>3</sub> - 1 (c) Linkage and ionisation (any one) - 1 (d) t <sub>2g</sub> <sup>3</sup> e <sub>g</sub> <sup>1</sup>  OR (e) Geometrical isomers and cis isomer shows optical isomers - 1 (f) 8000 cm <sup>-1</sup>	
	31)	(a) i) C <sub>6</sub> H <sub>6</sub> ii) 2,4,6-tribromoaniline  (b) A=C <sub>6</sub> H <sub>5</sub> COOH B=C <sub>6</sub> H <sub>5</sub> CONH <sub>2</sub> C=C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub> (c) N-methylbenzamide  OR  (a) (i) Diazotization, reduction, alkylation (ii) Reduction, acylation (iii) HBF <sub>4</sub> and then NaNO <sub>2</sub> , Cu, heat  (b) Correct reasons	1x2 1x2 1 1x3 1x2
	32)	(a) Preparation-KMnO <sub>4</sub> (b) Any two (c) Balanced equations  OR  (a) i) Cr <sup>3+</sup> (t <sub>2g</sub> 3) ii) Mn <sup>3+</sup> (stable d <sub>5</sub> ) iii) Ti <sup>4+</sup> (no d electrons)  (b) d-d transition (c) unpaired electrons strong metallic bonding	2 1 2  (3) x( $\frac{1}{2} + \frac{1}{2}$ ) 1 1
	33)	(i) Due to formation of azeotrope (ii) No of solute particles are same (iii) two differences (iv) 0.0131 (v) 2.704 (vi) Correct graph (BP x VP) (vii) 32 mm of Hg	1x5=5
Set B	1)	a	1

	<b>9)</b>	a	1
	<b>10)</b>	c	1
	<b>17</b>	$\log 2 = (E_a / 2.303 \times 8.314) [1/298 - 1/308]$ $E_a = \frac{\log 2 \times 2.303 \times 8.314 \times 298 \times 308}{308 - 298}$ $E_a = 52.898 \text{ kJ}$	1+1
	<b>18</b>	$\Delta T_b = \frac{2 \times 0.512 \times 10 \times 1000}{74.5 \times 200} = 0.6872 \text{ K}$	1+1
	<b>19</b>	(a) Correct order (b) Cyclopentane	1+1
	<b>22</b>	d <sup>2</sup> sp <sup>3</sup> . Octahedral, diamagnetic, low spin	3
	<b>28</b>	k = 0.03 s <sup>-1</sup> t = 46.22 minutes	1 2
Set C			
	<b>1</b>	d	1
	<b>3</b>	a	1
	<b>9</b>	C	1
	<b>17</b>	$\log \frac{K_2}{K_1} = \frac{E_a}{2.303R} \left[ \frac{T_2 - T_1}{T_1 T_2} \right]$ $\log \frac{3K}{K} = \frac{E_a}{2.303 \times 8.314} \left[ \frac{373 - 323}{373 \times 323} \right]$ $\log 3 = \frac{E_a \times 50}{2.303 \times 8.314 \times 373 \times 323}$ $E_a = 22011.76 \text{ J mol}^{-1}$	1+1
	<b>18</b>	Tb = $\frac{4 \times 0.512 \times 10 \times 1000}{133.5 \times 200} = 0.767 \text{ K}$	1+1
	<b>23</b>	Ni(CO) <sub>4</sub> -tetrahedral, Ni(CN) <sub>4</sub> 2- square planar both r strong ligands pairing takes place. Explanation	3