## Marking scheme – 2017

# CHEMISTRY (043)/ CLASS XII

#### Set 56/1/1

Q.No	Value Points	Marks
1	MnO <sub>4</sub> <sup>-</sup> / KMnO <sub>4</sub>	1
2	N-Ethyl-N-methylethanamine	1
3	First order	1
4	BrCH <sub>2</sub> CH=CHCH <sub>2</sub> Cl	1
5	Both are surface phenomenon / both increase with increase in surface area (or any	1
	other correct similarity)	
6	(i)NH <sub>3</sub> +3 Cl <sub>2</sub> (excess) $\rightarrow$ NCl <sub>3</sub> + 3HCl	1
	(ii)XeF <sub>6</sub> + 2H <sub>2</sub> O $\rightarrow$ XeO <sub>2</sub> F <sub>2</sub> + 4HF	1
	OR	
6	(i) $(NH_4)_2 Cr_2 O_7 \rightarrow N_2 + 4H_2O + Cr_2O_3$	1
	(ii) 4H₃PO₃ → 3H₃PO₄ +PH₃	1
7	<ul> <li>Properties that are independent of nature of solute and depend on number of moles of solute only.</li> </ul>	1
	(ii) Number of moles of solute dissolved per kg of the solvent .	1
8	(i)	1
	S S S S S S S S S S S S S S S S S S S	
		1
9	$\Lambda^{\circ}_{CH3COOH} = \lambda^{\circ}_{CH3COO-} + \lambda^{\circ}_{H+}$	1/2
	$= 40.9 + 349.6 = 390.5 \text{ s cm}^2/\text{mol}$	1/2
	Now, $\alpha = \Lambda_m / \Lambda_m^o$	1/2
	= 39.05 / 390.5 = 0.1	1/2
10.	(i) $ \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \end{array}\\ \end{array}\\ \end{array}\\ \end{array}\\ \end{array}\\ \end{array}\\ \begin{array}{c} \end{array}\\ \end{array}\\ \begin{array}{c} \end{array}\\ \end{array}\\ \end{array}\\ \begin{array}{c} \end{array}\\ \end{array}\\ \end{array}\\ \begin{array}{c} \end{array}\\ \end{array}\\ \end{array}\\ \begin{array}{c} \end{array}\\ \end{array}\\ \begin{array}{c} \end{array}\\ \end{array}\\ \begin{array}{c} \end{array}\\ \end{array}\\ \end{array}$ (i) NH2NH2 (i) NH2NH2 (ii) NH2NH2N2 (ii) NH2NH2N2 (ii) NH2NH2N2N2 (ii) NH2NH2NZ}(Ii) NH2	1

	$ \begin{array}{c} & & \\ & & $	
	or	
		1
		-
	(i) CrO2Cl2, CS2 $(i)$ CrO2Cl2, CS2	
	Toluene (ii)H3O+ Benzaldehyde	
11	$\Delta T_{f} = K_{f} m$	1/2
	Here , $m = w_2 x 1000 / M_2 X M_1$	
	273.15-269.15 = K <sub>f</sub> x 10 x1000/ 342 x90	1
	K <sub>f</sub> = 12.3 K kg/mol	1/2
	$\Delta T_{f} = K_{f} m$	
	= 12.3 x 10 x1000/ 180x90	
	= 7.6 K	
	T <sub>f</sub> = 273.15 – 7.6 = 265.55 K (or any other correct method)	1
12	(i)m = Zlt	1/2
	= <u>108x2x15 x60</u>	1
	1×96500	
	= 2.01 g (or any other correct method)	1/2
	(ii) Cells that converts the energy of combustion of fuels directly into electrical	1
	energy.	
13	(i) Coordination isomerism	1
	(ii) Unpaired electrons in $[Ni(H_2O)_6]^{2+}$ / d-d transition	1
	(iii) Pentaamminecarbonatocobalt(III) Chloride	1
14	(i) Lyophobic are liquid(dispersion medium)-hating and lyophillic are	1
	liquid(dispersion medium)-loving colloids.	
	(ii) Solution is a Homogenous mixture while colloid is heterogenous mixture	1
	/ does not show Tyndall effect -shows Tyndall effect.	1
	<ul> <li>(iii) Homogenous catalysis : reactants and catalyst are in same phase -</li> <li>Heterogeneous catalysis: reactants and catalyst are not in same phase.</li> </ul>	<b>1</b>
	(or any other correct difference)	
15		1/2
	(a) $k = \frac{2.303}{t} \log \frac{[A]o}{[A]}$	, 2
	$=\frac{2.303}{300}$ log $\frac{1.6 \times 10^{-2}}{0.8 \times 10^{-2}}$	
	$300 = 0.8 \times 10^{-2}$	
	$=\frac{2.303}{300}$ log 2 = 2.31 x10 <sup>-3</sup> s <sup>-1</sup>	1/2
	$-\frac{300}{108}$ 108 2 - 2.31 X10 S	
	2.303 [A]o	
	At 600 s, $k = \frac{2.303}{t} \log \frac{[A]o}{[A]}$	1/2
	$=\frac{2.303}{600} \log \frac{1.6 \times 10^{-2}}{0.4 \times 10^{-2}}$	
	$-\frac{1}{600}$ $\log \frac{1}{0.4 \times 10^{-2}}$	
	$= 2.31 \times 10^{-3} \text{ s}^{-1}$	
	k is constant when using first order equation therefore it follows first and a	
	k is constant when using first order equation therefore it follows first order	1/2
	kinetics.	
	or	

	In equal time interval, half of the reactant gets converted into product and	
	the rate of reaction is independent of concentration of reactant, so it is a	
	first order reaction.	
	(b) $t_{1/2} = 0.693/k$ = 0.693/ 2.31x10 <sup>-3</sup>	
	$= 0.693/2.31\times10$ = 300 s	
	(If student writes directly that half life is 300 s , award full marks)	1
16	(i) 1- Bromopentane	1
10	(i) 2-Bromopentane	1
	(iii) 2-Bromo-2-methylbutane	1
17	(i) The impurities are more soluble in the melt than in the solid state of the metal.	1
17	(i) PbS	1
	(iii)Impurities like SiO <sub>2</sub> etc are removed by using NaOH solution and pure alumina is	1
	obtained .	-
18.	(i) A : C <sub>6</sub> H <sub>5</sub> MgBr B : C <sub>6</sub> H <sub>5</sub> COOH C : C <sub>6</sub> H <sub>5</sub> COCI	½×3
		½ × 3
	(ii)A : $CH_3CHO$ B : $CH_3CH(OH)CH_2CHO$ C : $CH_3CH=CHCHO$	
	OR (i) OH ODOL	
18	(i) $C_6H_5COOH$ soci <sub>2</sub> $C_6H_5COCI$ $H_2, Pd-BaSO_4$ $C_6H_5CHO$	1
	(ii) $C_6H_5C_2H_5$ $K_2Cr_2O_7/H^+$ $C_6H_5COOH$	
		1
	(iii)CH <sub>3</sub> COCH <sub>3 NaBH<sub>4</sub></sub> CH <sub>3</sub> CH(OH)CH <sub>3</sub> conc.H <sub>2</sub> SO <sub>4</sub> CH <sub>3</sub> CH=CH <sub>2</sub>	
		1
	(or any other correct method)	
19.	(i) $HOCH_2CH_2OH + HOOC \longrightarrow COOH$	1/2+1/2
	(i) $HOCH_2CH_2OH + HOOC \longrightarrow COOH$	
	(ii)	
		1/2+1/2
	$H_2N$ $V$ $NH_2$	
	+ HCHO	
		1/ 1/
	$(iii)CH_2=CH-CH=CH_2 + CH_2=CHCN$	$\frac{1}{2} + \frac{1}{2}$
20.	(i) Anionic detergents are sodium salts of sulphonated long chain alcohols or hydrocarbons / alkylbonzono sulphonate or detergents whose anionic part is	1
	hydrocarbons / alkylbenzene sulphonate or detergents whose anionic part is involved in cleansing action.	1
	(ii)Broad spectrum antibiotics: Antibiotics which kill or inhibit a wide range of	1
	Gram-positive and Gram-negative bacteria.	1
	(iii) Antiseptics are the chemicals which either kill or prevent growth of microbes	1
	on living tissues.	
21	(i) Due to the decrease in bond dissociation enthalpy / due to increase in	1
	<ul><li>atomic size from O to Te.</li><li>(ii) Due to small size of fluoride ion / high charge density of fluoride ion /</li></ul>	1
	<ul> <li>(ii) Due to small size of fluoride ion / high charge density of fluoride ion / high charge size ratio of fluoride ion.</li> </ul>	1
	(iii) Absence of d-orbitals.	
22	(i) Due to the resonance, the electron pair of nitrogen atom gets delocalised	1
	towards carbonyl group / resonating structures.	-
	(ii)Because of +I effect in methylamine electron density at nitrogen increases	
	whereas in aniline resonance takes place and electron density on nitrogen	1
	decreases / resonating structures.	1
	(iii)Due to protonation of aniline / formation of anilinium ion	

			$\frac{1}{2} + \frac{1}{2}$			
23	<ul> <li>(i)concerned , caring, socially alert, leadership ( or any other 2 values)</li> <li>(ii)starch</li> </ul>					
	(ii)starch (iii) $\alpha$ -Helix and $\beta$ -pleated sheets					
	(iv)Vitamin B / $B_1$ / $B_2$ / $B_6$ / C (any two )					
24	a) (i) Due to small size and high ionic charge / availability of d orbitals.					
	(ii) Higher is the oxidation state higher is the acidic character / as the					
	oxidation state of a metal increases, io					
	(iii) Because $Mn^{2+}$ has d <sup>5</sup> as a stable configuration whereas $Cr^{3+}$ is more					
	stable due to stable $t^{3}_{2g}$					
	b) Similarity-both are stable in $+3$ oxid	dation state/ both show contraction/				
			1			
	irregular electronic configuration (or a		-			
		nd lanthanoids are not / actinoids show	1			
	wide range of oxidation states but lant	hanoids don't (or any other correct	1			
	difference)					
		OR				
24		e in oxidation state is 2 and in transition	1			
	metals the difference is 1					
	ii) Cu <sup>+</sup> , due to disproportionation reac	tion / low hydration enthalpy	1/2 + 1/2			
	iii) Due to formation of chromate ion	$/ \text{CrO}_4^{2-}$ ion, which is yellow in colour	1			
	b) Actinoids are radioactive , actinoids		1+1			
25	(a) $\rho = (zxM) / a^3 x N_a$		1/2			
25	$11.5 = z \times 93 / [(300 \times 10^{-10})^3 \times 6.02 \times 10^{23}]$	1	1			
	Z = 2.0	1	1/2			
	Body centred cubic(bcc)		1			
	(b)		1			
	Ámorphous solids	Crystalline solids				
	Short range order	Long range order				
	Isotropic	Anisotropic	1+1			
		(or any other correct difference)				
		OR				
25	a) n= given mass / molar mass					
	= 8.1 / 27 mol		1/2			
	Number of atoms= $\frac{8.1}{27}$ x 6.022x10 <sup>23</sup>		1/2			
	Number of atoms in one unit cell= 4 (fc	c)				
	Number of unit cells = $\left[\frac{8.1}{27} \times 6.022 \times 10^{23}\right]$		1/2			
	$= 4.5 \times 10^{22}$	/ -	1/2			
			/-			
	Or 27g of Al contains= 6.022x10 <sup>23</sup> atoms		1/2			
	8.1g of Al contains = $(6.022 \times 10^{23} / 27)$	v 8 1	/2 1/2			
	No of unit cells = total no of atoms $/4$	A 0.1	/2			
	$=\left[\frac{8.1}{27} \times 6.022 \times 10^{23}\right] / 4$ =4.5 x10 <sup>22</sup> b) i) Due to comparable size of cation and anion / large size of sodium ion					
	ii) P has 5 valence e, an extra electron	results in the formation of n-type	1			
	semiconductor.					
	iii)In ferrimagnetism ,domains / magnetic moments are aligned in opposite					
	direction in unequal numbers while in antiferromagnetic the domains align in					
	opposite direction in equal numbers so they cancel magnetic moments					
	completely ,net magnetism is zero / diagrammatic representation.					

26		1
	a) i)	
	ii) $(CH_3)_2CHOH$ and $CH_3CH_2I$	1
	iii) CH <sub>3</sub> CH=CHCHO	1
	b) i) Add neutral FeCl <sub>3</sub> to both the compounds, phenol gives violet complex.	1
	ii) Add anhy $ZnCl_2$ and conc. HCl to both the compounds,	1
	2-methyl propan-2-ol gives turbidity immediately. (or any other correct test)	
	OR	
26	a) i)Aq. Br <sub>2</sub>	1
	ii) $B_2H_6$ , $H_2O_2$ and $OH^2$	1
	b) i) ethanol <phenol<p-nitrophenol< td=""><td>1</td></phenol<p-nitrophenol<>	1
	ii) propane <propanal<propanol< td=""><td>1</td></propanal<propanol<>	1
	c)	
	$CH_{3}CH_{2} - \overset{\circ}{O}: + CH_{3} - CH_{2} - \overset{\circ}{O} + \overset{H}{H}$	1

1	Dr. (Mrs.) Sangeeta Bhatia	12	Sh. S. Vallabhan
2	Dr. K.N. Uppadhya	13	Dr. Bhagyabati Nayak
3	Prof. R.D. Shukla	14	Ms. Anila Mechur Jayachandran
4	Sh. S.K. Munjal	15	Mrs. Deepika Arora
5	Sh. D.A. Mishra	16	Ms. Seema Bhatnagar
6	Sh. Rakesh Dhawan	17	Mrs. Sushma Sachdeva
7	Dr. (Mrs.) Sunita Ramrakhiani	18	Dr. Azhar Aslam Khan
8	Mrs. Preeti Kiran	19	Mr. Roop Narain Chauhan
9	Ms. Neeru Sofat	20	Mr. Mukesh Kumar Kaushik
10	Sh. Pawan Singh Meena	21	Ms. Abha Chaudhary
11	Mrs. P. Nirupama Shankar	22	Ms. Garima Bhutani

# Marking scheme – 2017

## CHEMISTRY (043)/ CLASS XII

### Set 56/1/2

QNo.	Value Points	Marks
1	Both are surface phenomenon / both increase with increase in surface area	1
	(or any other correct similarity)	
2	$NO_2$	1
3	First order	1
4	N-Methylpropan-2-amine	1
5	$Cr_2O_7^{2-}/CrO_4^{2-}/K_2Cr_2O_7/K_2CrO_4$	1
6	$\Lambda^{\circ}_{\text{CH3COOH}} = \lambda^{\circ}_{\text{CH3COO-}} + \lambda^{\circ}_{\text{H+}}$	1/2
	= 40.9 + 349.6 = 390.5 S cm <sup>2</sup> /mol	1/2
	Now, $\alpha = \Lambda_m / \Lambda_m^o$	1/2
	= 39.05 / 390.5 = 0.1	1/2
7	(i)	1
8	(ii) F (i) The colution that chave Baculte Law over the entire range of	1
8	<ul><li>(i) The solution that obeys Raoults Law over the entire range of concentration</li><li>(ii) Number of moles of solute dissolved per litre of solution or</li></ul>	1
	$M = \frac{w_b \times 1000}{M_b X V (mL)}$	
9	(i) $Cl_2 + H_2O \rightarrow 2 HCl + [O] / HCl + HOCl$	1
	(ii) $XeF_6 + 3H_2O \rightarrow XeO_3 + 6HF$	1
	OR	
9	(i) $Cu + 2 H_2SO_4 \rightarrow CuSO_4 + SO_2 + 2H_2O$	1
	$(ii)SO_3 + H_2O \rightarrow H_2SO_4$	1
10.	(i)	1
	$\begin{array}{c} \text{(i) } X_2/\text{Red phosphorus} \\ \hline \text{(ii) } H_2\text{O} \\ \hline X \\ X \\ X = \text{Cl, Br} \end{array} \xrightarrow{\text{(i) } X_2/\text{Red phosphorus}} R-\text{CH-COOH}$	

	(ii) $R-COONa \xrightarrow{NaOH \& CaO} R-H + Na_2CO_3$	1		
11	(i) Lyophobic are liquid (dispersion medium) - hating and lyophillic	1		
	are liquid (dispersion medium) - loving colloids.			
	(ii) Solution is a Homogenous mixture while colloid is heterogenous mixture / does not show Tyndall effect -shows Tyndall effect.	1		
	(iii) Homogenous catalysis : reactants and catalyst are in same phase	1		
	-Heterogeneous catalysis: reactants and catalyst are not in			
12	same phase.(or any other correct difference)(i)1- Bromopentane	1		
	(ii) 2-Bromopentane	1		
	(iii) 2-Bromo-2-methylbutane	1		
13.	(i) Metal is converted into its volatile compound and collected elsewhere. It is then decomposed at high temperature to give pure metal.	1		
	<ul><li>(ii) The impurities are more soluble in the melt than in the solid state of the metal.</li></ul>	1		
	(iii) Different components of a mixture are differently adsorbed on an	1		
14	adsorbent. $\Delta T_f = K_f m$	1/2		
	Here , m = $w_2 x \ 1000 / M_2 X M_1$			
	$273.15-269.15 = K_f x 10 x1000/342 x90$	1		
	$K_f = 12.3 \text{ K kg/mol}$ $\Delta T_f = K_f \text{ m}$	1/2		
	$= 12.3 \times 10 \times 1000 / 180 \times 90$			
	= 7.6 K			
15.	$T_f = 273.15 - 7.6 = 265.55 \text{ K}$ (or any other correct method) (i) Cationic detergents are quarternary ammonium salts of amines with	1		
15.	acetates, chlorides or bromides as anions, cationic part has long chain	1		
	hydrocarbon / detergents whose cationic part is involved in cleansing	1		
	action. (ii)Narrow spectrum antibiotics are effective mainly against Gram-positive			
	or Gram-negative bacteria			
	(iii) Disinfectants kill or prevent growth of microbes and are applied on inanimate / non living objects	-		
16	(i)m = ZIt	1/2		
	$= \frac{108 \times 2 \times 15 \times 60}{1 \times 25522}$	1		
	1×96500 = 2.01 g (or any other correct	1/2		
	method)	/2		
	(ii) Cells that converts the energy of combustion of fuels directly into electrical energy.	1		
17	(i) Coordination isomerism	1		
	(ii) Unpaired electrons in $[Ni(H_2O)_6]^{2+}$ / d-d transition	1		
18	(iii) Pentaamminecarbonatocobalt(III) Chloride (i) $A : C_6H_5MgBr  B : C_6H_5COOH  C : C_6H_5COCI$	1 ½ × 3		
	(ii) A : $CH_3CHO$ B : $CH_3CH(OH)CH_2CHO$ C : $CH_3CH=CHCHO$	½ × 3		
	OR			
18	(i) $C_6H_5COOH$ <u>soci</u> $C_6H_5COCI$ <u>H2, Pd - Baso</u> $C_6H_5CHO$	1		
	(ii) $C_6H_5C_2H_5$ $\kappa_{2Cr_2O_7/H^+}$ $C_6H_5COOH$	1		
	(iii)CH <sub>3</sub> COCH <sub>3 NaBH4</sub> $CH_3CH(OH)CH_3 \xrightarrow{conc.H_2SO_4} CH_3CH=CH_2$			
	(or any other correct method)	1		

19.	(i)CH <sub>2</sub> =C(CI)CH=CH <sub>2</sub>	1
1.5.		1 ×
	(ii)	1
	$H_2N$ $\sim$ $N_1$ $NH_2$	
	$\begin{array}{c} H_2 N \swarrow N \\ N \swarrow N \\ N \\ N \\ N \\ N \\ N \\ N \\$	
	NH <sub>2</sub> + HCHO	
		1
20	(iii) $CH_2 = CHCH = CH_2 + CH_2 = CHC_6H_5$ (a) $k = \frac{2.303}{t} \log \frac{[A]o}{[A]}$	1/2
20	(a) $k = \frac{1}{t} \log \frac{1}{[A]}$	/2
	$=\frac{2.303}{300} \log \frac{1.6 \times 10^{-2}}{0.8 \times 10^{-2}}$	
	500 0.0 × 10	
	$=\frac{2.303}{300}$ log 2 = 2.31 x10 <sup>-3</sup> s <sup>-1</sup>	1/2
	500	
	At 600 s, $k = \frac{2.303}{t} \log \frac{[A]_0}{[A]}$	1/2
	$=\frac{2.303}{600} \log \frac{1.6 \times 10^{-2}}{0.4 \times 10^{-2}}$	/-
	$-\frac{100}{600}$ $\frac{100}{0.4 \times 10^{-2}}$	
	$= 2.31 \times 10^{-3} \text{ s}^{-1}$	
	k is constant when using first order equation therefore it follows	1/2
	first order kinetics.	
	or In equal time interval, half of the reactant gets converted into	
	product and the rate of reaction is independent of concentration of	
	reactant, so it is a first order reaction.	
	(b) $t_{1/2} = 0.693/k$	
	$= 0.693/2.31 \times 10^{-3}$	
	= 300 s (If student writes directly that half life is 300 s , award full marks)	
		1
21	(i) Due to the resonance, the electron pair of nitrogen atom gets delocalised towards carbonyl group / resonating structures.	1
	(ii) Because of +I effect in methylamine electron density at nitrogen	
	increases whereas in aniline resonance takes place and electron density	1
	on nitrogen decreases / resonating structures. (iii) Due to protonation of aniline / formation of anilinium ion	1
22	(i) Due to the decrease in bond dissociation enthalpy / due to	1
	increase in atomic size from O to Te.	
	(ii) Due to small size of fluoride ion / high charge density of fluoride ion / high charge size ratio of fluoride ion.	1
	(iii) Absence of d-orbitals.	1
23	(i) Concerned , caring, socially alert, leadership (or any other 2 values)	$\frac{1}{2} + \frac{1}{2}$
	<ul><li>(ii) Starch</li><li>(iii) α -Helix and β-pleated sheets</li></ul>	1
	(iv) Vitamin B / $B_1$ / $B_2$ / $B_6$ / C (any two )	$\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$
24	СООН	/2 + /2
	OCOCH <sub>3</sub>	1
	a) i)	
	ii) (CH <sub>3</sub> ) <sub>2</sub> CHOH and CH <sub>3</sub> CH <sub>2</sub> I	1
	<ul><li>iii) CH<sub>3</sub>CH=CHCHO</li><li>b) i) Add neutral FeCl<sub>3</sub> to both the compounds, phenol gives violet</li></ul>	1
	complex.	<b>–</b>
	ii) Add anhy ZnCl <sub>2</sub> and conc.HCl to both the compounds,	1

	2-methyl propan-2-ol gives turbidity im	mediately. (or any other correct			
	test)				
24		<u> </u>	1		
24	a) i) Aq. Br <sub>2</sub>				
	ii) $B_2H_6$ , $H_2O_2$ and $OH^2$				
	b) i) ethanol < phenol < p-nitrophenol		1		
	ii) propane < propanal < propanol				
	c)				
	$CHCH = \ddot{O}$ + $CH CH = O$				
	$CH_{3}CH_{2} - \overset{\frown}{O} + CH_{3} - CH_{2} - \overset{\frown}{O} + \overset{H}{H}$		1		
25	a) (i) Due to small size and high ionic	charge / availability of d orbitals.	1		
	(ii) Higher is the oxidation state high	er is the acidic character / as the	1		
	oxidation state of a metal increases, i	onic character decreases			
	(iii) Because $Mn^{2+}$ has d <sup>5</sup> as a stable		1		
	more stable due to stable $t_{2g}^3$	8			
	b) Similarity-both are stable in $+3$ ox	idation state/ both show			
	contraction/ irregular electronic confi		1		
	_	iguration (or any other suitable	-		
	similarity)		1		
	Difference- actinoids are radioactive		L _		
	show wide range of oxidation states l	out lanthanoids don't (or any other			
	correct difference)				
	OR				
25	a) i) In p block elements the differen	ce in oxidation state is 2 and in	1		
	transition metals the difference is 1				
	ii) Cu <sup>+</sup> , due to disproportionation reaction / low hydration enthalpy				
	iii) Due to formation of chromate ion / $\text{CrO}_4^{2^-}$ ion, which is yellow in				
	colour	· · · · · · · · · · · · · · · · · · ·			
		ts show wide range of oxidation	1+1		
	b) Actinoids are radioactive, actinoids show wide range of oxidation states				
26	(a) $\rho = (zxM) / a^3 x N_a$		1/2		
20	(a) $\rho = (2XM) / a \times N_a$ 11.5 = z × 93 / [(300×10 <sup>-10</sup> ) <sup>3</sup> × 6.02×10 <sup>23</sup> ]				
	Z = 2.0	1	1		
	Body centred cubic(bcc)		1/2		
	(b)		1		
		Crystalline solids			
	Short range order	Long range order	1+1		
	Short range order	Long range order Anisotropic	1+1		
	Short range order	Long range order Anisotropic (or any other correct difference)	1+1		
26	Short range order Isotropic	Long range order Anisotropic (or any other correct difference)	1+1		
26	Short range order Isotropic	Long range order Anisotropic (or any other correct difference)			
26	Short range order Isotropic OR a) n= given mass / molar mass = 8.1 / 27 mol	Long range order Anisotropic (or any other correct difference)	1/2		
26	Short range order Isotropic 0R a) n= given mass / molar mass = 8.1 / 27 mol Number of atoms= $\frac{8.1}{27}$ x 6.022x10 <sup>23</sup>	Long range order Anisotropic (or any other correct difference)			
26	Short range order Isotropic a) n= given mass / molar mass = $8.1 / 27$ mol Number of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (f	Long range order Anisotropic (or any other correct difference)	У <sub>2</sub> У2		
26	Short range orderIsotropic $a)$ n= given mass / molar mass $= 8.1 / 27$ molNumber of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (fNumber of unit cells = [ $\frac{8.1}{27} \times 6.022 \times 10^{23}$	Long range order Anisotropic (or any other correct difference)	У <sub>2</sub> У <sub>2</sub> У <sub>2</sub>		
26	Short range order Isotropic a) n= given mass / molar mass = 8.1 / 27 mol Number of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (f Number of unit cells = [ $\frac{8.1}{27} \times 6.022 \times 10^{23}$ = 4.5 x10 <sup>22</sup>	Long range order Anisotropic (or any other correct difference)	У <sub>2</sub> У2		
26	Short range orderIsotropic0Ra) n= given mass / molar mass = 8.1 / 27 molNumber of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (fNumber of unit cells = $[\frac{8.1}{27} \times 6.022 \times 10^{23}]$ = 4.5 x10^{22}Or	Long range order Anisotropic (or any other correct difference)	Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub>		
26	Short range order Isotropic a) n= given mass / molar mass = 8.1 / 27 mol Number of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (f Number of unit cells = [ $\frac{8.1}{27} \times 6.022 \times 10^{23}$ $= 4.5 \times 10^{22}$ Or 27g of Al contains= $6.022 \times 10^{23}$ atoms	Long range order Anisotropic (or any other correct difference)	У <sub>2</sub> У <sub>2</sub> У <sub>2</sub> У <sub>2</sub> У <sub>2</sub> У <sub>2</sub>		
26	Short range orderIsotropic $a)$ n= given mass / molar mass $= 8.1 / 27$ molNumber of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (fNumber of unit cells = [ $\frac{8.1}{27} \times 6.022 \times 10^{23}$ $= 4.5 \times 10^{22}$ Or27g of Al contains= $6.022 \times 10^{23}$ atoms8.1g of Al contains = ( $6.022 \times 10^{23} / 27$ )	Long range order Anisotropic (or any other correct difference)	Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub>		
26	Short range orderIsotropic $A$ ) n= given mass / molar mass $= 8.1 / 27$ molNumber of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (fNumber of unit cells = $[\frac{8.1}{27} \times 6.022 \times 10^{23}$ $= 4.5 \times 10^{22}$ Or27g of Al contains= $6.022 \times 10^{23}$ atoms8.1g of Al contains = $(6.022 \times 10^{23} / 27)$ No of unit cells = total no of atoms /4	Long range order Anisotropic (or any other correct difference)	У <sub>2</sub> У <sub>2</sub> У <sub>2</sub> У <sub>2</sub> У <sub>2</sub> У <sub>2</sub>		
26	Short range orderIsotropica) n= given mass / molar mass = $8.1 / 27$ molNumber of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (fNumber of unit cells = $[\frac{8.1}{27} \times 6.022 \times 10^{23}]$ $= 4.5 \times 10^{22}$ Or27g of Al contains= $6.022 \times 10^{23}$ atoms8.1g of Al contains = $(6.022 \times 10^{23} / 27)$ No of unit cells = total no of atoms /4 $=[\frac{8.1}{27} \times 6.022 \times 10^{23}] / 4$	Long range order Anisotropic (or any other correct difference)	У <sub>2</sub> У <sub>2</sub> У <sub>2</sub> У <sub>2</sub> У <sub>2</sub> У <sub>2</sub>		
26	Short range orderIsotropic $a)$ n= given mass / molar mass $= 8.1 / 27$ molNumber of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (fNumber of unit cells = [ $\frac{8.1}{27} \times 6.022 \times 10^{23}$ $= 4.5 \times 10^{22}$ Or27g of Al contains= $6.022 \times 10^{23}$ atoms8.1g of Al contains = ( $6.022 \times 10^{23} / 27$ )	Long range order Anisotropic (or any other correct difference)	Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub>		
26	Short range orderIsotropicIsotropica) n= given mass / molar mass = 8.1 / 27 molNumber of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (fNumber of atoms in one unit cell= 4 (fNumber of unit cells = [ $\frac{8.1}{27} \times 6.022 \times 10^{23}$ $= 4.5 \times 10^{22}$ Or27g of Al contains= $6.022 \times 10^{23}$ atoms8.1g of Al contains = $(6.022 \times 10^{23} / 27)$ No of unit cells = total no of atoms /4 $= [\frac{8.1}{27} \times 6.022 \times 10^{23}] / 4$ $= 4.5 \times 10^{22}$	Long range order Anisotropic (or any other correct difference) (cc) <sup>3</sup> ] / 4	Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub>		
26	Short range orderIsotropica) n= given mass / molar mass = $8.1 / 27$ molNumber of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (fNumber of unit cells = $[\frac{8.1}{27} \times 6.022 \times 10^{23}]$ $= 4.5 \times 10^{22}$ Or27g of Al contains= $6.022 \times 10^{23}$ atoms8.1g of Al contains = $(6.022 \times 10^{23} / 27)$ No of unit cells = total no of atoms /4 $=[\frac{8.1}{27} \times 6.022 \times 10^{23}] / 4$	Long range order Anisotropic (or any other correct difference) (cc) (a) (cc) (cc) (cc) (cc) (cc) (cc)	Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub> Y <sub>2</sub>		
26	Short range orderIsotropicIsotropica) n= given mass / molar mass = 8.1 / 27 molNumber of atoms= $\frac{8.1}{27} \times 6.022 \times 10^{23}$ Number of atoms in one unit cell= 4 (fNumber of unit cells = $[\frac{8.1}{27} \times 6.022 \times 10^{23}$ $= 4.5 \times 10^{22}$ Or27g of Al contains= $6.022 \times 10^{23}$ atoms8.1g of Al contains = $(6.022 \times 10^{23} / 27)$ No of unit cells = total no of atoms /4 $=[\frac{8.1}{27} \times 6.022 \times 10^{23}] / 4$ $=4.5 \times 10^{22}$ b) i) Due to comparable size of cation	Long range order Anisotropic (or any other correct difference) (cc) (a) (cc) (cc) (cc) (cc) (cc) (cc)	y <sub>2</sub> y <sub>2</sub> y <sub>2</sub> y <sub>2</sub> y <sub>2</sub> y <sub>2</sub> y <sub>2</sub> y <sub>2</sub>		

representation.
-----------------

1	Dr. (Mrs.) Sangeeta Bhatia	12	Sh. S. Vallabhan
2	Dr. K.N. Uppadhya	13	Dr. Bhagyabati Nayak
3	Prof. R.D. Shukla	14	Ms. Anila Mechur Jayachandran
4	Sh. S.K. Munjal	15	Mrs. Deepika Arora
5	Sh. D.A. Mishra	16	Ms. Seema Bhatnagar
6	Sh. Rakesh Dhawan	17	Mrs. Sushma Sachdeva
7	Dr. (Mrs.) Sunita Ramrakhiani	18	Dr. Azhar Aslam Khan
8	Mrs. Preeti Kiran	19	Mr. Roop Narain Chauhan
9	Ms. Neeru Sofat	20	Mr. Mukesh Kumar Kaushik
10	Sh. Pawan Singh Meena	21	Ms. Abha Chaudhary
11	Mrs. P. Nirupama Shankar	22	Ms. Garima Bhutani

# Marking scheme – 2017

# CHEMISTRY (043)/ CLASS XII

#### Set 56/1/3

Q.No	Value Points	Marks
1	i) No effect	1/2
	ii) Decreases	1/2
2	Both are surface phenomenon / both increase with increase in surface area	1
	(or any other correct similarity)	
3	MnO <sub>4</sub> / KMnO <sub>4</sub>	1
4	BrCH <sub>2</sub> (CH <sub>3</sub> )C=CH <sub>2</sub>	1
5	N,N-Dimethylethanamine	1
6	(i)	1
	$\begin{array}{c} & \searrow C = O \xrightarrow{Zn-Hg} & \searrow CH_2 + H_2O \end{array}$	
	(ii) $ \begin{array}{c} H \\ H \\ H \end{array} = 0 + H \\ H \end{array} = 0 + Conc. KOH \xrightarrow{\Delta} H - C - OH + H - C \\ H \\ H \\ H \end{array} $	1
7.	(i)	1
		1
8	<ul> <li>(i) If the molar mass calculated by using any of the colligative properties to be different than theoretically expected molar mass</li> <li>(ii) Extent of dissociation or association or ratio of the observed colligative</li> </ul>	1
	_ · · ·	-
9	property to calculated colligative property	
9	property to calculated colligative property $\Lambda^{\circ}_{CH3COOH} = \lambda^{\circ}_{CH3COO-} + \lambda^{\circ}_{H+}$	- 1/2 1/2
9	property to calculated colligative property $\Lambda^{\circ}_{CH3COOH} = \lambda^{\circ}_{CH3COO-} + \lambda^{\circ}_{H+}$ = 40.9 + 349.6 = 390.5 S cm <sup>2</sup> /mol	<i>1</i> / <sub>2</sub>
9	property to calculated colligative property $\Lambda^{\circ}_{CH3COOH} = \lambda^{\circ}_{CH3COO-} + \lambda^{\circ}_{H+}$	1/2 1/2
9	property to calculated colligative property $\Lambda^{\circ}_{CH3COOH} = \lambda^{\circ}_{CH3COO-} + \lambda^{\circ}_{H+}$ $= 40.9 + 349.6 = 390.5 \text{ S cm}^2/\text{mol}$ Now, $\alpha = \Lambda_m / \Lambda^{\circ}_m$ = 39.05 / 390.5 = 0.1	1/2 1/2 1/2
	property to calculated colligative property $\Lambda^{\circ}_{CH3COOH} = \lambda^{\circ}_{CH3COO-} + \lambda^{\circ}_{H+}$ $= 40.9 + 349.6 = 390.5 \text{ S cm}^2/\text{mol}$ Now, $\alpha = \Lambda_m / \Lambda^{\circ}_m$ = 39.05 / 390.5 = 0.1 (i) $F_2 + 2Cl^{\circ} \rightarrow 2F^{\circ} + Cl_2$	1/2 1/2 1/2 1/2 1/2
	property to calculated colligative property $\Lambda^{\circ}_{CH3COOH} = \lambda^{\circ}_{CH3COO-} + \lambda^{\circ}_{H+}$ $= 40.9 + 349.6 = 390.5 \text{ S cm}^2/\text{mol}$ Now, $\alpha = \Lambda_m / \Lambda^{\circ}_m$ = 39.05 / 390.5 = 0.1	½           ½           ½           ½           ½           ½           ½           1
	property to calculated colligative property $\Lambda^{\circ}_{CH3COOH} = \lambda^{\circ}_{CH3COO-} + \lambda^{\circ}_{H+}$ $= 40.9 + 349.6 = 390.5 \text{ S cm}^2/\text{mol}$ Now, $\alpha = \Lambda_m / \Lambda^{\circ}_m$ = 39.05 / 390.5 = 0.1 (i) F <sub>2</sub> + 2Cl <sup>-</sup> $\rightarrow$ 2F <sup>-</sup> + Cl <sub>2</sub> (ii) 2XeF <sub>2</sub> + 2H <sub>2</sub> O $\rightarrow$ 2Xe +4HF +O <sub>2</sub>	½           ½           ½           ½           ½           ½           ½           1

11	(i) Due to the resonance, the electron pair of nitrogen atom gets	1	
	delocalised towards carbonyl group / resonating structures.		
	(ii) Because of +I effect in methylamine electron density at nitrogen increases whereas in aniline resonance takes place and electron density		
	on nitrogen decreases / resonating structures.	1	
	(iii) Due to protonation of aniline / formation of anilinium ion		
		1	
12	(i) Due to the decrease in bond dissociation enthalpy / due to		
	increase in atomic size from O to Te.	1	
	(ii) Due to small size of fluoride ion / high charge density of fluoride	1	
	ion / high charge size ratio of fluoride ion. (iii) Absence of d-orbitals.		
13	<ul><li>(iii) Absence of d-orbitals.</li><li>(i) Anionic detergents are sodium salts of sulphonated long chain</li></ul>	1	
15	alcohols or hydrocarbons / detergents whose anionic part is	T	
	involved in cleansing action.		
	(ii) Limited spectrum antibiotics are effective against a single	1	
	organism or disease.	Ŧ	
	(iii) Tranquilizers are class of chemicals used for treatment of	1	
	stress or mild or severe mental diseases.		
14	(i)	1	
	H		
	$H_{2C}$ $CH_{2}$ ·		
	H <sub>2</sub> CCH <sub>2</sub> / NH <sub>2</sub> (CH <sub>2</sub> ) <sub>5</sub> -COOH		
	(ii)		
	$H_2N$ $\bigvee$ $NH_2$	1	
	$H_2N \bigvee N \\ N \\ N \\ NH_2$ + HCHO		
	<sup>NH<sub>2</sub></sup> + HCHO		
	(iii) $CF_2 = CF_2$		
45		1	
15	(i) $A : C_6H_5MgBr  B : C_6H_5COOH  C : C_6H_5COCI$	1/2 × 3	
	(ii) A : $CH_3CHO$ B : $CH_3CH(OH)CH_2CHO$ C : $CH_3CH=CHCHO$	½ × 3	
	OR		
15	(i) $C_6H_5COOH$ soci <sub>2</sub> $C_6H_5COCI$ $H_2, Pd-BaSO_4$ $C_6H_5CHO$	1	
	(ii) $C_6H_5C_2H_5$ $K_2Cr_2O_7/H^+ C_6H_5COOH$	1	
	(iii)CH <sub>3</sub> COCH <sub>3</sub> NaBH <sub>4</sub> $\rightarrow$ CH <sub>3</sub> CH(OH)CH <sub>3</sub> conc.H <sub>2</sub> SO <sub>4</sub> $\rightarrow$ CH <sub>3</sub> CH=CH <sub>2</sub>	1	
	(or any other correct method)		
16	(i) The impurities are more soluble in the melt than in the solid state of the	1	
	metal.	1	
	(ii) PbS		
	(iii) Impurities like $SiO_2$ etc are removed by using NaOH solution and pure	1	
	alumina is obtained .		
17	(i) 1- Bromopentane	1	
	(ii) 2-Bromopentane	1	
	(iii) 2-Bromo-2-methylbutane	1	
18	(a) $k = \frac{2.303}{t} \log \frac{[A]o}{[A]}$	1/2	
	t  t  i  t		

		1
	$=\frac{2.303}{300} \log \frac{1.6 \times 10^{-2}}{0.8 \times 10^{-2}}$	
	500 0.8 × 10 -	
	$=\frac{2.303}{300}$ log 2 = 2.31 x10 <sup>-3</sup> s <sup>-1</sup>	1/2
	300 10g 2 - 2.51 ×10 - 3	
	At 600 s, $k = \frac{2.303}{t} \log \frac{[A]o}{[A]}$	1/2
		/2
	$=\frac{2.303}{600} \log \frac{1.6 \times 10^{-2}}{0.4 \times 10^{-2}}$	
	600 - 0.4 × 10 - 2	
	$= 2.31 \times 10^{-3} \text{ s}^{-1}$	
	k is constant when using first order equation therefore it follows first	1/2
	order kinetics.	-
	or	
	In equal time interval, half of the reactant gets converted into product	
	and the rate of reaction is independent of concentration of reactant,	
	so it is a first order reaction.	
	(b) $t_{1/2} = 0.693/k$	
	$= 0.693/2.31 \times 10^{-3}$	
	= 300 s	
	(If student writes directly that half life is 300 s , award full marks)	1
19.	(i) Multimolecular colloid : a large number of atoms or smaller molecules of	1
	a substance aggregate together to form species having size in the colloidal	
	range.	
	Macromolecular: Large sized molecules whose particle size lies in the	
	colloidal range. (ii) Sol are solid dispersed in liquid while gel are liquid dispersed in solid	
	(iii) In O/W emulsion, water acts as dispersion medium while in W/O oil	1
	acts as dispersion medium	1
20	(i)Optical isomerism	1
	(ii)d <sup>2</sup> sp <sup>3</sup> , diamagnetic	$\frac{1}{2} + \frac{1}{2}$
	(iii)Triamminetrichloridochromium(III)	1
21	(i)m = ZIt	1/2
	= 108x2x15 x60	1
	1×96500	
	= 2.01 g (or any other correct	1/2
	method)	
	(ii) Cells that converts the energy of combustion of fuels directly into	1
	electrical energy.	
22	$\Delta T_{f} = K_{f} m$	1/2
	Here , $m = w_2 x \ 1000 / M_2 X M_1$	
	273.15-269.15 = K <sub>f</sub> x 10 x1000/ 342 x90	1
	K <sub>f</sub> = 12.3 K kg/mol	1/2
	$\Delta T_{f} = K_{f} m$	
	$= 12.3 \times 10 \times 1000 / 180 \times 90$	
	= 7.6 K	
	$T_f = 273.15 - 7.6 = 265.55 \text{ K}$ (or any other correct method)	1
23	(i)concerned, caring, socially alert, leadership (or any other 2 values)	1/2 + 1/2
	(ii)starch	1
	(iii) $\alpha$ -Helix and $\beta$ -pleated sheets (iv)Vitamin B / B <sub>1</sub> / B <sub>2</sub> / B <sub>6</sub> / C (any two )	$\frac{1}{2} + \frac{1}{2}$
	$\left[ \frac{1}{2} \right] $	$\frac{1}{2} + \frac{1}{2}$

24	(a) $\rho = (zxM) / a^3 x N_a$		
			½ 1
	$11.5 = z \times 93 / [(300 \times 10^{-10})^3 \times 6.02 \times 10^{23}]$		1/2
	Z = 2.0		1
	Body centred cubic(bcc)		
	(b)		
	Amorphous solids	Crystalline solids	1+1
	Short range order Long range order		
	Isotropic	Anisotropic	
	(or any other correct difference)		
24			
24	a) n= given mass / molar mass = 8.1 / 27 mol	1/2	
	Number of atoms= $\frac{8.1}{27}$ x 6.022x10 <sup>23</sup>		1/2 1/2
	Number of atoms in one unit cell= 4 (	fcc)	/2
	Number of unit cells = $\left[\frac{8.1}{27} \times 6.022 \times 10^2\right]$		1/2
	$= 4.5 \times 10^{22}$	1/ -	1/2
	= 4.5 x10		
	27g of Al contains= $6.022 \times 10^{23}$ atoms		1/2
	8.1g of Al contains =( $6.022 \times 10^{23}$ / 27	) x 8.1	1/2
	No of unit cells = total no of atoms $/4$		
	$=\left[\frac{8.1}{27} \times 6.022 \times 10^{23}\right] / 4$		1/2
	$=4.5 \times 10^{22}$		1/2
	b) i) Due to comparable size of cation	and anion / large size of sodium ion	4
	ii) P has 5 valence e <sup>-</sup> , an extra electro		1 1
	semiconductor.		
	iii) In ferrimagnetism ,domains / magnetic moments are aligned in opposite		
	direction in unequal numbers while in antiferromagnetic the domains align in opposite direction in equal numbers so they cancel magnetic moments		1
	completely ,net magnetism is zero / diagrammatic representation.		
25	СООН		
			1
	OCOCH <sub>3</sub>		
	a) i)		
	ii) (CH <sub>3</sub> ) <sub>2</sub> CHOH and CH <sub>3</sub> CH <sub>2</sub> I		1
	iii) CH <sub>3</sub> CH=CHCHO		1
	b) i) Add neutral FeCl <sub>3</sub> to both the co	ompounds, phenol gives violet	1
	<ul><li>ii) Add anhy ZnCl<sub>2</sub> and conc. HCl to</li></ul>	both the compounds	1
	· ·	mmediately. (or any other correct test)	1
25	a) i) Aq. Br <sub>2</sub>		1
	ii) $B_2H_6$ , $H_2O_2$ and $OH^2$		1
	b) i) ethanol < phenol < p-nitrophenol		1
	ii) propane < propanal < propanol		1
	c)		
	$CH_{3}CH_{2} \xrightarrow{O:} + CH_{3} \xrightarrow{CH_{2} \xrightarrow{O}} H_{H}$		
	H H		1
	п		

26	a) (i) Due to small size and high ionic charge / availability of d orbitals.	1		
	(ii) Higher is the oxidation state higher is the acidic character / as the			
	oxidation state of a metal increases, ionic character decreases (iii) Because $Mn^{2+}$ has d <sup>5</sup> as a stable configuration whereas $Cr^{3+}$ is more stable due to stable $t^{3}_{2g}$			
	b) Similarity-both are stable in +3 oxidation state/ both show			
	contraction/ irregular electronic configuration (or any other suitable similarity)			
	Difference- actinoids are radioactive and lanthanoids are not / actinoids show wide range of oxidation states but lanthanoids don't (or any other	1		
	correct difference)			
	OR			
26	a) i) In p block elements the difference in oxidation state is 2 and in transition metals the difference is 1	1		
	ii) $Cu^+$ , due to disproportionation reaction / low hydration enthalpy	1/2 + 1/2		
	iii) Due to formation of chromate ion / $\text{CrO}_4^{2-}$ ion, which is yellow in	1		
	colour			
	b) Actinoids are radioactive, actinoids show wide range of oxidation			
	states.	1+1		

1	Dr. (Mrs.) Sangeeta Bhatia	12	Sh. S. Vallabhan	
2	Dr. K.N. Uppadhya	13	Dr. Bhagyabati Nayak	
3	Prof. R.D. Shukla	14	Ms. Anila Mechur Jayachandran	
4	Sh. S.K. Munjal	15	Mrs. Deepika Arora	
5	Sh. D.A. Mishra	16	Ms. Seema Bhatnagar	
6	Sh. Rakesh Dhawan	17	Mrs. Sushma Sachdeva	
7	Dr. (Mrs.) Sunita Ramrakhiani	18	Dr. Azhar Aslam Khan	
8	Mrs. Preeti Kiran	19	Mr. Roop Narain Chauhan	
9	Ms. Neeru Sofat	20		
10	Sh. Pawan Singh Meena	21	Ms. Abha Chaudhary	
11	Mrs. P. Nirupama Shankar	22	Ms. Garima Bhutani	