

SUMMATIVE ASSESSMENT III - 2025-26
CHEMISTRY
Answer key

Qn. No	Sub.Qn	Scoring indicators	Score	Total score
1		C	1	1
2		B	1	1
3		C	1	1
4		C	1	1
5	a	$1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 4s^2$	1	2
	b	Group 4	1	
6	a)	2 L	1	2
	b)	Boyle's law - statement	1	
7	(A) a)	Zn electrode	1	2
	b)	Chemical energy into electrical energy	1	
	(B)			
	a	Electrical energy into chemical energy	1	
8	a)	A- C_4H_{10} B- C_6H_{14}	1	2
	b)	C_nH_{2n+2} (n= Number of carbon atoms)	1	
9	(A)		1	2
	a)	Definition of polymerisation		
	b)	Ethylene/Ethene/ $CH_2=CH_2$	1	
		OR		
	(B)			
	a)	Addition polymerisation, Condensation polymerisation	1	
10	a)	Levigation / Hydraulic washing	1	2
	b)	Froth floatation	1	
11	a)	X is Sodium carbonate, Na_2CO_3	1	2
	b)	$Na_2CO_3 + 2H_2O \rightarrow 2NaOH + H_2CO_3$	1	

12	a)	Methanol is industrially produced by treating carbon monoxide with hydrogen in the presence of catalyst.	1	
		or		
		$\text{CO} + 2\text{H}_2 \xrightarrow[573\text{ K}]{\text{catalyst}} \text{CH}_3 - \text{OH}$		2
	b)	Ethanoic acid can be prepared industrially by treating methanol with carbon monoxide in the presence of catalyst.	1	
		or		
		$\text{CH}_3\text{OH} + \text{CO} \xrightarrow{\text{catalyst}} \text{CH}_3\text{COOH}$		
13	(A)		1	
	a)	$\begin{array}{c} \text{CH}_3 - \text{CH} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$		
	b)	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{CH} - \text{CH} - \text{CH}_3 \\ \\ \text{CH}_3 \end{array} \quad \text{2, 3- Dimethylbutane /}$	1+1	
		$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{C} - \text{CH}_2 - \text{CH}_3 \\ \\ \text{CH}_3 \end{array} \quad \text{2, 2- Dimethylbutane}$		3
		OR		
	B			
	a)	$\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_2 - \text{CH}_3$	1	
	b)	$\text{CH} \equiv \text{C} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$	1	
		$\text{CH}_3 - \text{C} \equiv \text{C} - \text{CH}_2 - \text{CH}_3$	1	
14	a)	In first beaker	1	
	b)	Zinc displaces copper from its salt solution. The more reactive metal displaces the less reactive metal from its salt solution.	1	3
	c)	$\text{Zn} + \text{CuSO}_4 \longrightarrow \text{ZnSO}_4 + \text{Cu}$	1	
15	A) a)	Number of moles in $3 \times 6.022 \times 10^{23}$ molecules = 3 mols	1	
	b)	Mass of 3 mols of $\text{NH}_3 = 3 \times 17 = 51\text{ g}$	1	
		$3 \times 22.4\text{ L} = 67.2\text{ L}$	1	
		OR		3
	B			
	a)	Number of moles = $2240/22.4 = 100\text{ mols}$	1	
	b)	Number of molecules = $100 \times 6.022 \times 10^{23}$	1	
	c)	No. of mols = $396\text{ g} / 44\text{ g} = 9$	1	

16	(A)	a) Alloys are mixtures of two or more metals. Nonmetals like carbon, nitrogen and phosphorous are used for the production of alloys. b) Fe, Cr, Ni, C c) Silicon steel	1 1 1	3
17	(A) a)	i. Rate of backward reaction increases. ii. Rate of backward reaction increases.	1 1	
	b)	In a system at equilibrium, increase in temperature will increase the rate of endothermic reaction. When the pressure of the system at equilibrium is decreased, the system will try to attain equilibrium by increasing the rate of reaction in the direction where the number of moles of molecules increases. So the rate of backward reaction increases.	2	
	(B)	OR		
	a)	Rate of forward reaction decreases.	1	4
	b)	Rate of decomposition of SO_3 will increase.	1	
	c)	When the pressure of the system at equilibrium is decreased, the system will try to attain equilibrium by increasing the rate of reaction in the direction where the number of moles of molecules increases. So the rate of forward reaction decrease. In a system at equilibrium, increase in temperature will increase the rate of endothermic reaction. Rate of backward reaction increases. So the decomposition of SO_3 increase.	2	
18	a)	3d n=3 l=2 4s n=4 l=0 4f n=4 l=3 5d n=5 l=2	2	
	b)	3d n+l = 3+2= 5 4s n+l = 4 +0=4 4f n+l = 4+3 =7 5d n+l = 5+2 =7 4s < 3d < 4f < 5d	1 1	4