

SSLC MODEL EXAMINATION, FEBRUARY 2017-18

CHEMISTRY ●ANSWER KEY

Q No	ANSWER KEY	SCORE	TOTAL	CHOICE																		
1	f	1	<u>1</u>	Any four																		
2	22.4	1	<u>1</u>																			
3	Hot NaOH solution	1	<u>1</u>																			
4	Ester	1	<u>1</u>																			
5	For industrial purposes , ethanol is sometimes mixed with poisonous substances . The mixture so obtained is called denatured spirit	1	<u>1</u>																			

6	a) $1s^2 2s^2 2p^6 3s^2 3p^1$	1	<u>2</u>	Any four																		
	b) 13	1																				
7	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Element</th> <th style="width: 10%;">Atomic Mass</th> <th style="width: 10%;">Amount taken in g</th> <th style="width: 15%;">Number of molecules</th> <th style="width: 15%;">Number of atoms</th> <th style="width: 10%;">Volume at STP L</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">H₂</td> <td style="text-align: center;">1</td> <td style="text-align: center;">4g</td> <td style="text-align: center;">(a) <u>$2 \times 6.022 \times 10^{23}$</u></td> <td style="text-align: center;">$4 \times 6.022 \times 10^{23}$</td> <td style="text-align: center;">(b) $2 \times 22.4 =$ <u>44.8</u></td> </tr> <tr> <td style="text-align: center;">He</td> <td style="text-align: center;">4</td> <td style="text-align: center;">(c) <u>20 g</u></td> <td style="text-align: center;">$5 \times 6.022 \times 10^{23}$</td> <td style="text-align: center;">(d) <u>$5 \times 6.022 \times 10^{23}$</u></td> <td style="text-align: center;">112</td> </tr> </tbody> </table>	Element	Atomic Mass		Amount taken in g	Number of molecules	Number of atoms	Volume at STP L	H ₂	1	4g	(a) <u>$2 \times 6.022 \times 10^{23}$</u>	$4 \times 6.022 \times 10^{23}$	(b) $2 \times 22.4 =$ <u>44.8</u>	He	4	(c) <u>20 g</u>	$5 \times 6.022 \times 10^{23}$	(d) <u>$5 \times 6.022 \times 10^{23}$</u>	112	½ ½	<u>2</u>
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8	a) Na	1	<u>2</u>																			
	b) Cu	1																				
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10	(a) Cement combines with water and sets into a hardened mass(setting of cement)	1	<u>2</u>																			
	(b) Cement combines with water and sets into a hardened mass . It is an <i>exothermic reaction</i> . Hence a <i>large amount of heat energy</i> is liberated Direct contact with the skin will lead to burning . To prevent this , workers wear gloves	1																				

11	(Question error . 7 O ₂ is suitable instead of 5 O ₂)		<u>3</u>																			
	(a) 3.5 mols If 7 O ₂ is used (a) 2.5 mols If 5 O ₂ is used	1																				
	(b) 224 L	2																				
12	(a) Test tube containing powdered copper . When solids are made into small pieces or powder, their surface area increases. As a result the number of molecules undergoing effective collisions also increases. Hence the rate of reaction increases.	2	<u>3</u>																			
	(b) Increase the temperature	1																				
13	(a) The amount NO ₂ will increase	1	<u>3</u>																			
	(b) <i>Reduce</i> the <i>pressure</i> of the system. According to Le – Cheltelier's principle , if the pressure of a system of gaseous reacting species is altered , the system will try to nullify the effect of that change. <i>The right side of the equation given has more gaseous moles than the left side . Decrease in pressure will favour the side with more gaseous moles</i> . That is , the reaction proceeds faster towards the right side if the pressure is decreased <i>(Or any other suitable response)</i>	2																				

14	(a) (i) Bauxite ($\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$) (ii) Sodium aluminate (NaAlO_2) solution (iii) Precipitate $\text{Al}(\text{OH})_3$ (iv) Alumina (Al_2O_3)	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	3	Any four
	(b) Here, Oxygen is liberated at the Anode. It reacts with the carbon anode forming carbon dioxide. As a result, the anode gets consumed up. Hence Anode should be removed at regular intervals.	1		
15	(a) Soda lime glass / Soda glass/ Soft glass Silicon dioxide (SiO_2), Sodium carbonate (Na_2CO_3) Calcium carbonate (CaCO_3)	1 1	3	
	(b) Cobalt oxide	1		

16	(a) (A) $[\text{Ne}] 3s^2 3p^5$, (D) $[\text{Ar}] 3d^{10} 4s^2 4p^5$	1	4	
	(b) B $[\text{Ar}] 4s^1$	1		
	(c) B $[\text{Ar}] 4s^1$	1		
	(d) $[\text{Ar}] 3d^3$	1		
17	(a) $\begin{array}{cc} \text{CH}_3 & \text{CH}_3 \\ & \\ \text{CH}_3-\text{CH} & -\text{CH}-\text{CH}_3 \end{array}$	1	4	
	(b) 2- Methyl pentane / 3- Methyl pentane	1		
	(c) -CHO	1		
	(d) Hex - 2 - yne	1		
18	(a) A = Zinc (Zn) B = Nickel (Ni)	1	4	Any four
	(b) From Zinc electrode to Nickel electrode	1		
	(c) Nickel (Ni)	1		
	(d) $\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}^-$ $\text{Ni}^{2+} + 2\text{e}^- \rightarrow \text{Ni}$ ----- $\text{Zn} + \text{Ni}^{2+} \rightarrow \text{Zn}^{2+} + \text{Ni}$	1		
19	(a) $\text{CH}_3\text{-O-CH}_2\text{-CH}_3$, $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-OH}$	1	4	
	(b) $\text{CH}_3\text{-O-CH}_2\text{-CH}_3$	1		
	(c) $\text{CH}_3\text{-COOH}$	1		
	(d) $\begin{array}{c} \text{OH} \\ \\ \text{CH}_3\text{-CH}_2\text{-CH-CH}_3 \end{array}$, $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-OH}$	1		
20	(a) (i) $\text{CH}_3\text{-CH}_2\text{-CH}_3 + \text{Cl}_2 \rightarrow \text{CH}_3\text{-CH}_2\text{-CH}_2\text{-Cl} + \text{HCl}$ (ii) $\text{CH}_3\text{-CH=CH}_2 + \text{Cl}_2 \rightarrow \text{CH}_3\text{-CHCl-CH}_2\text{-Cl}$ (B)	1 1	4	
	(b) Addition	1		
	$\begin{array}{c} \text{---}(\text{CH}_2\text{-CH})\text{---} \\ \\ \text{Cl} \end{array}$	1		
Prepared by Unmesh B, Govt. VHSS Kallara, Thiruvananthapuram				