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UNREVISED**

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ಕರ್ನಾಟಕ ಪ್ರೌಢ ಶಿಕ್ಷಣ ಪರೀಕ್ಷಾ ಮಂಡಳಿ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು – 560 003

**KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD, MALLESWARAM,  
BANGALORE – 560 003**

ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ. ಪರೀಕ್ಷೆ, ಮಾರ್ಚ್ / ಏಪ್ರಿಲ್ — 2020

**S. S. L. C. EXAMINATION, MARCH/APRIL, 2020**

ಮಾದರಿ ಉತ್ತರಗಳು

**MODEL ANSWERS**

ದಿನಾಂಕ : 30. 03. 2020 ]

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Chem.)**

Date : 30. 03. 2020 ]

CODE NO. : **83-E (Chem.)**

ವಿಷಯ : ವಿಜ್ಞಾನ

**Subject : SCIENCE**

( ರಸಾಯನಶಾಸ್ತ್ರ / Chemistry )

( ಹಳೆ ಪಠ್ಯಕ್ರಮ / Old Syllabus )

( ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Repeater )

( ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version )

[ ಗರಿಷ್ಠ ಅಂಕಗಳು : 80

[ Max. Marks : 80

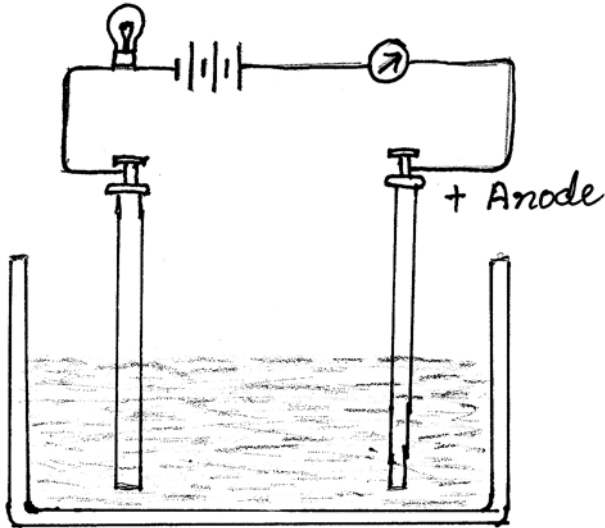
Qn. Nos.	Value Points	Total
1.	During the evaporation of cleaned sugarcane juice, the reason to reduce the pressure surrounding it is, to (A) increase the boiling point of sugarcane juice (B) decolourise the sugar (C) decrease the boiling point of sugarcane juice (D) increase the size of the sugar crystals. Ans. : (C) decrease the boiling point of sugarcane juice	1
4.	Sodium chloride in its aqueous solution is a strong electrolyte, because it (A) dissociates completely (B) is a covalent compound (C) does not dissociate (B) dissociates incompletely. Ans. : (A) dissociates completely	1

**RR(B)-436 (CHE)**

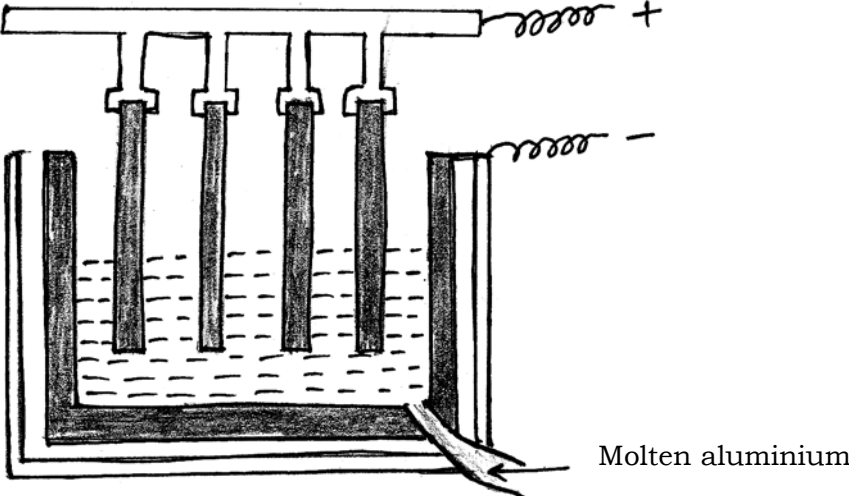
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Qn. Nos.	Value Points	Total																																							
9.	<p>The hydrocarbon that undergoes hydrogenation among the following is</p> <p>(A) <math>\text{CH}_4</math> (B) <math>\text{C}_2\text{H}_6</math></p> <p>(C) <math>\text{C}_2\text{H}_2</math> (D) <math>\text{C}_3\text{H}_8</math>.</p> <p>Ans. :</p> <p>(C) <math>\text{C}_2\text{H}_2</math></p>	1																																							
11.	<p>Match the names of organic compounds given in <b>Column-A</b> with their molecular formula given in <b>Column-B</b> and write the answer along with its letters : <span style="float: right;"><math>4 \times 1 = 4</math></span></p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left;"><b>Column-A</b></th> <th style="text-align: left;"><b>Column-B</b></th> <th></th> </tr> </thead> <tbody> <tr> <td>(A) Propane</td> <td>(i) <math>\text{C}_4\text{H}_8</math></td> <td></td> </tr> <tr> <td>(B) Butene</td> <td>(ii) <math>\text{C}_4\text{H}_{10}</math></td> <td></td> </tr> <tr> <td>(C) Cyclohexane</td> <td>(iii) <math>\text{C}_6\text{H}_6</math></td> <td></td> </tr> <tr> <td>(D) Propyne</td> <td>(iv) <math>\text{C}_3\text{H}_8</math></td> <td></td> </tr> <tr> <td></td> <td>(v) <math>\text{C}_6\text{H}_{12}</math></td> <td></td> </tr> <tr> <td></td> <td>(vi) <math>\text{C}_4\text{H}_6</math></td> <td></td> </tr> <tr> <td></td> <td>(vii) <math>\text{C}_3\text{H}_4</math>.</td> <td></td> </tr> </tbody> </table> <p>Ans. :</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left;"><b>Column-A</b></th> <th style="text-align: left;"><b>Column-B</b></th> <th></th> </tr> </thead> <tbody> <tr> <td>(A) Propane</td> <td>(iv) <math>\text{C}_3\text{H}_8</math></td> <td>1</td> </tr> <tr> <td>(B) Butene</td> <td>(i) <math>\text{C}_4\text{H}_8</math></td> <td>1</td> </tr> <tr> <td>(C) Cyclohexane</td> <td>(v) <math>\text{C}_6\text{H}_{12}</math></td> <td>1</td> </tr> <tr> <td>(D) Propyne</td> <td>(vii) <math>\text{C}_3\text{H}_4</math></td> <td>1</td> </tr> </tbody> </table>	<b>Column-A</b>	<b>Column-B</b>		(A) Propane	(i) $\text{C}_4\text{H}_8$		(B) Butene	(ii) $\text{C}_4\text{H}_{10}$		(C) Cyclohexane	(iii) $\text{C}_6\text{H}_6$		(D) Propyne	(iv) $\text{C}_3\text{H}_8$			(v) $\text{C}_6\text{H}_{12}$			(vi) $\text{C}_4\text{H}_6$			(vii) $\text{C}_3\text{H}_4$ .		<b>Column-A</b>	<b>Column-B</b>		(A) Propane	(iv) $\text{C}_3\text{H}_8$	1	(B) Butene	(i) $\text{C}_4\text{H}_8$	1	(C) Cyclohexane	(v) $\text{C}_6\text{H}_{12}$	1	(D) Propyne	(vii) $\text{C}_3\text{H}_4$	1	4
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13.	<p>What is catenation ?</p> <p>Ans. :</p> <p>The unique ability of carbon atom to form co-valent bonds with other atoms of carbon, giving rise to large molecule of chain of ring structure.</p>	1																																							

Qn. Nos.	Value Points	Total
21.	<p>Explain the method of extraction of crystalline silicon. Write the balanced chemical equation of the reaction taking place in this process.</p> <p style="text-align: center;">OR</p> <p>Write balanced chemical equations for the following chemical reactions :</p> <p>a) Reaction of amorphous silicon with steam</p> <p>b) Reaction of amorphous silicon with oxygen.</p> <p>Ans. :</p> <p>★ Crystalline silicon is obtained by reducing silica with coke. <span style="float: right;"><math>\frac{1}{2}</math></span></p> <p>★ When excess of silica is heated with coke in the electric furnace in the absence of air, dark grey coloured silicon is obtained in its crystalline form. <span style="float: right;"><math>\frac{1}{2}</math></span></p> $\text{SiO}_2 + 2\text{C} \xrightarrow{\text{Heat}} \text{Si} + 2\text{CO} \uparrow$ <p style="text-align: center;">OR</p> <p>a) With steam</p> $\begin{array}{ccccccc} \text{Si} & + & 2\text{H}_2\text{O} & \longrightarrow & \text{SiO}_2 & + & 2\text{H}_2 \uparrow \\ \text{Silicon} & & \text{Steam} & & \text{Silicon} & & \text{Hydrogen} \\ & & & & \text{dioxide} & & \end{array}$ <p>b) With oxygen</p> $\begin{array}{ccccccc} \text{Si} & + & \text{O}_2 & \longrightarrow & \text{SiO}_2 & & \\ \text{Silicon} & & \text{Oxygen} & & \text{Silicon} & & \\ & & & & \text{dioxide} & & \end{array}$	2
24.	<p>Draw the diagram of the apparatus showing electrolysis and label anode.</p> <p>Ans. :</p>	2

Qn. Nos.	Value Points	Total
	 <p data-bbox="922 869 1310 987">Figure — <math>1\frac{1}{2}</math> Labelling — <math>\frac{1}{2}</math></p>	2
27.	<p data-bbox="260 1019 1326 1099">What is fermentation ? Write the three steps involved in the fermentation of molasses.</p> <p data-bbox="767 1126 818 1160" style="text-align: center;">OR</p> <p data-bbox="260 1182 1326 1263">What are the two main sources of sucrose ? Name the two monosaccharides in sucrose molecule.</p> <p data-bbox="260 1290 347 1323"><i>Ans. :</i></p> <p data-bbox="260 1350 1326 1435">Fermentation is a chemical decomposition produced by micro organisms of certain organic matters. <span style="float: right;"><math>\frac{1}{2}</math></span></p> <p data-bbox="260 1469 363 1503"><i>Steps :</i></p> <ul style="list-style-type: none"> <li data-bbox="260 1525 1326 1615">★ Dilution of molasses by water such that the solution contains about 10% sugar. <span style="float: right;"><math>\frac{1}{2}</math></span></li> <li data-bbox="260 1641 1326 1731">★ Addition of yeast and maintaining the temperature range of 308 K to 313 K. <span style="float: right;"><math>\frac{1}{2}</math></span></li> <li data-bbox="260 1758 1326 1803">★ Distillation of fermented matter. <span style="float: right;"><math>\frac{1}{2}</math></span></li> </ul> <p data-bbox="767 1839 818 1872" style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li data-bbox="260 1899 1326 1937">★ The main sources of sucrose are, <span style="float: right;">2</span></li> </ul>	2

Qn. Nos.	Value Points	Total
	— Cane sugar	$\frac{1}{2}$
	— Beet root sugar	$\frac{1}{2}$
	★ The two monosaccharides of sucrose molecule are,	
	— Glucose	$\frac{1}{2}$
	— Fructose.	$\frac{1}{2}$
30.	<p>4l of a gas is enclosed in a vessel at <math>4 \times 10^5</math> Pa pressure. It is allowed to expand to 8l under constant temperature. Find the final pressure of the gas in the vessel.</p> <p>Ans. :</p> <p><math>V_1 = 4l</math></p> <p><math>V_2 = 8l</math></p> <p><math>P_1 = 4 \times 10^5</math> Pa</p> <p><math>P_2 = ?</math></p> <p>According to Boyle's law,</p> <p><math>P_1V_1 = P_2V_2</math></p> <p><math>P_2 = \frac{P_1V_1}{V_2}</math></p> <p><math>= \frac{4 \times 10^5 \times 4}{8}</math></p> <p><math>P_2 = 2 \times 10^5</math> Pa.</p>	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p>1</p>
32.	<p>Draw the diagram of the apparatus used in the extraction of aluminium from alumina and label molten aluminium.</p> <p>Ans. :</p>	2

Qn. Nos.	Value Points	Total										
	 <p data-bbox="917 851 1308 963">Figure — <math>1\frac{1}{2}</math> Labelling — <math>\frac{1}{2}</math></p>	2										
34.	<p data-bbox="263 996 1324 1086">Explain the method of preparation of safety glass and mention its important property.</p> <p data-bbox="263 1097 343 1131">Ans. :</p> <ul style="list-style-type: none"> <li data-bbox="263 1153 1324 1288">★ Safety glass is made by sandwiching thin layer of synthetic vinyl plastic in between two or three flat sheets of glass and then it is subjected to slight pressure. <math>\frac{1}{2}</math></li> <li data-bbox="263 1310 1324 1411">★ It is then heated till the glass layers and plastic layers merge into one another. <math>\frac{1}{2}</math></li> <li data-bbox="263 1422 1324 1478">★ On cooling the glass becomes quite tough. <math>\frac{1}{2}</math></li> <li data-bbox="263 1489 1324 1590">★ When such glass breaks, it does not fly into pieces as the inner plastic layer tends to hold back the broken pieces of the glass. <math>\frac{1}{2}</math></li> </ul>	2										
38.	<p data-bbox="263 1624 662 1657">Observe the following table :</p> <table border="1" data-bbox="295 1668 1268 1803"> <thead> <tr> <th data-bbox="295 1668 598 1736"><i>Element</i></th> <th data-bbox="598 1668 758 1736">A</th> <th data-bbox="758 1668 933 1736">B</th> <th data-bbox="933 1668 1093 1736">C</th> <th data-bbox="1093 1668 1268 1736">D</th> </tr> </thead> <tbody> <tr> <td data-bbox="295 1736 598 1803"><i>Atomic Number</i></td> <td data-bbox="598 1736 758 1803">12</td> <td data-bbox="758 1736 933 1803">2</td> <td data-bbox="933 1736 1093 1803">16</td> <td data-bbox="1093 1736 1268 1803">20</td> </tr> </tbody> </table> <p data-bbox="263 1814 558 1848">Identify the element,</p> <ol style="list-style-type: none"> <li data-bbox="263 1870 630 1904">a) which is a noble gas</li> <li data-bbox="263 1926 718 1960">b) having highest atomic size</li> </ol>	<i>Element</i>	A	B	C	D	<i>Atomic Number</i>	12	2	16	20	
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Qn. Nos.	Value Points	Total
	<p>c) having highest ionisation energy . Give suitable reason for your answer. Ans. :</p> <p>a) B is the noble gas element because, its valency is zero. <math>\frac{1}{2} + \frac{1}{2}</math></p> <p>b) D has the highest atomic size, because <math>\frac{1}{2}</math></p> <p>★ the atomic size increases down the group OR ★ the number of shells increase down the group. ( Any one point ) <math>\frac{1}{2}</math></p> <p>c) C has highest ionisation energy, because <math>\frac{1}{2}</math></p> <p>★ ionisation energy increases across a period OR ★ the nuclear pull on the electrons increases across a period. ( Any one point ) <math>\frac{1}{2}</math></p>	3
41.	<p>a) List any four physical properties of metals.</p> <p>b) What are alloys ? Mention two uses of stainless steel. Ans. :</p> <p>a) ★ Solids at room temperature ★ Sonorous ★ Generally malleable and ductile ★ Generally conduct electricity ★ Generally conduct heat ★ Lustrous. ( Any four points ) <math>4 \times \frac{1}{2}</math></p> <p>b) An alloy is a homoeneous mixture of two or more metals or metals with non-metals. 1 Stainless steel is used in manufacture of surgical instruments and utensils. 1</p>	4