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REVISED & UN-REVISED

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

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

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S. S. L. C. EXAMINATION, JUNE, 2018

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 25. 06. 2018]

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Chem.)**

Date : 25. 06. 2018]

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

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ರಸಾಯನಶಾಸ್ತ್ರ / Chemistry)

(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

(ಪುನರಾವರ್ತಿತ ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / Private Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

[ಗರಿಷ್ಠ ಅಂಕಗಳು : 100

[Max. Marks : 100

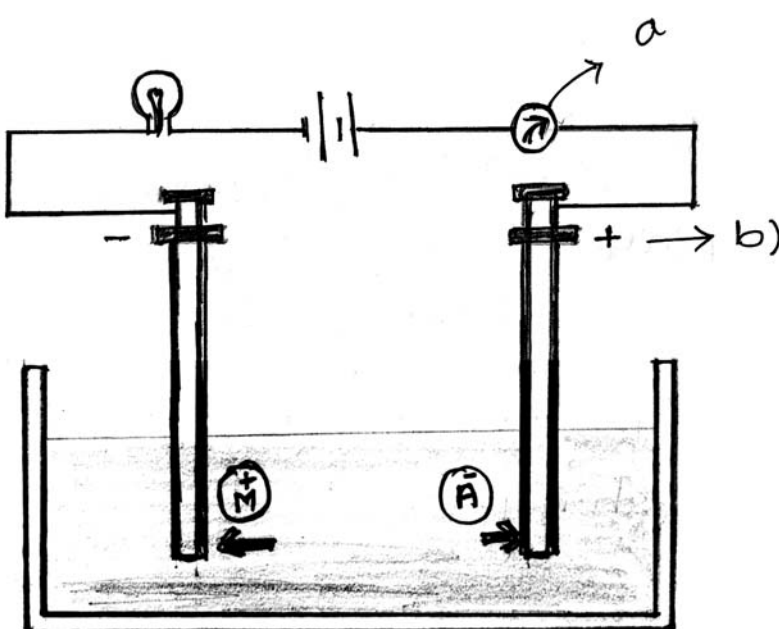
Qn. Nos.	Value Points	Total
1.	The sulphide ore among the following is (A) Bauxite (B) Chalcopryrite (C) Azurite (D) Malachite. Ans. : (B) — Chalcopryrite	1
4.	An application of Charles law in the following is (A) feeling of pain in ears of passengers while aeroplane is ascending suddenly (B) smell of hot food reaches us faster than cold food (C) balloon pops out more frequently in summer than in winter (D) balloon pops out when squeezed over the limit. Ans. : (C) — balloon pops out more frequently in summer than in winter	1

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[Turn over

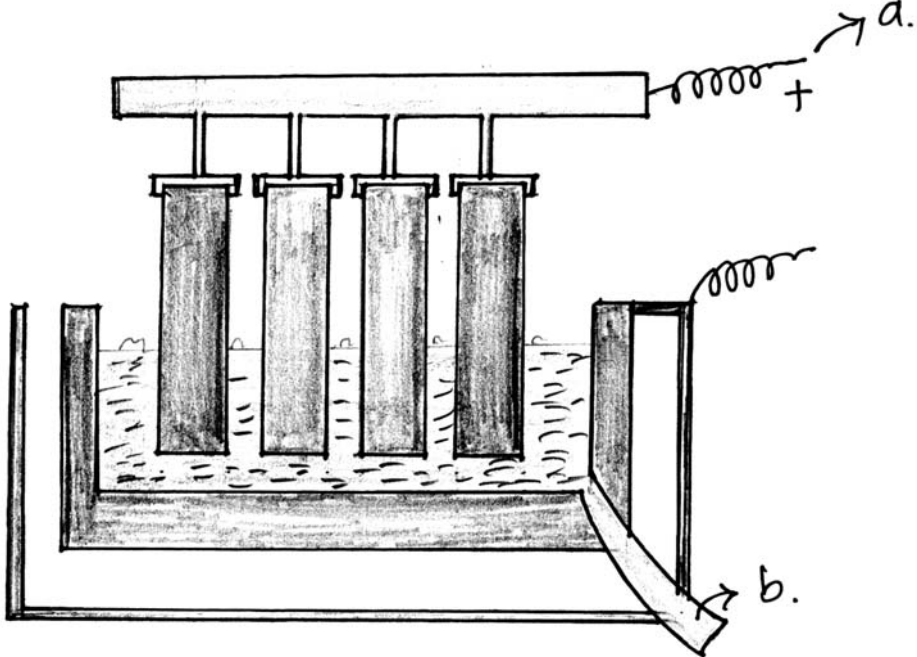
Qn. Nos.	Value Points	Total										
7.	<p>The four steps of manufacturing common sugar are given in wrong order.</p> <p>(a) Concentration and crystallization of juice.</p> <p>(b) Purification of juice.</p> <p>(c) Separation and drying of crystals.</p> <p>(d) Extraction of juice from the source.</p> <p>The correct arrangement of these steps is</p> <p>(A) b, d, c, a (B) d, a, b, c</p> <p>(C) a, c, d, b (D) d, b, a, c.</p> <p>Ans. : (D) — d, b, a, c.</p>	1										
9.	<p>In a copper voltameter, the mass of copper deposited at the cathode when 3 A of current is passed for 20 minutes is [ECE of copper is 0.0003 g/coulomb]</p> <p>(A) 18 g (B) 1.8 g</p> <p>(C) 1.08 g (D) 10.8 g.</p> <p>Ans. : (C) — 1.08 g</p>	1										
12.	<p>State Boyle's law.</p> <p>Ans. :</p> <p>Boyle's law : At constant temperature the volume of a given mass of dry gas is inversely proportional to its pressure.</p>	1										
15.	<p>Choose the elements in the following that belong to the same period in modern periodic table :</p> <table border="1" data-bbox="336 1581 1222 1765"> <thead> <tr> <th>Element</th> <th>Hydrogen</th> <th>Sodium</th> <th>Carbon</th> <th>Silicon</th> </tr> </thead> <tbody> <tr> <td>Atomic No.</td> <td>1</td> <td>11</td> <td>6</td> <td>14</td> </tr> </tbody> </table> <p>Ans. :</p> <p>Sodium (11), Silicon (14)</p> <p>(Both the elements to be written)</p>	Element	Hydrogen	Sodium	Carbon	Silicon	Atomic No.	1	11	6	14	1
Element	Hydrogen	Sodium	Carbon	Silicon								
Atomic No.	1	11	6	14								

Qn. Nos.	Value Points	Total
19.	<p>Mention the four steps in the manufacture of paper.</p> <p style="text-align: center;">OR</p> <p>Mention the four steps in the manufacture of glass.</p> <p>Ans. :</p> <p>i) Pulping</p> <p>ii) Mixing additives</p> <p>iii) Drying</p> <p>iv) Finishing.</p> <p style="text-align: center;">OR</p> <p>i) Melting</p> <p>ii) Shaping</p> <p>iii) Annealing</p> <p>iv) Finishing.</p>	<p style="text-align: right;">$4 \times \frac{1}{2}$</p> <p style="text-align: right;">2</p> <p style="text-align: right;">$4 \times \frac{1}{2}$</p> <p style="text-align: right;">2</p>
21.	<p>What is atomic size ? How does atomic size vary from left to right along the period and down the group in modern periodic table ?</p> <p>Ans. :</p> <p>Atomic size : The distance between the centre of an atom and its outermost orbital.</p> <p>Decreases along the period from left to right.</p> <p>Increases down the group.</p>	<p style="text-align: right;">1</p> <p style="text-align: right;">$\frac{1}{2}$</p> <p style="text-align: right;">$\frac{1}{2}$</p> <p style="text-align: right;">2</p>
24.	<p>Draw the diagram of the instrument used in electrolysis and label the following parts.</p> <p>(a) Ammeter</p> <p>(b) Anode.</p>	

Qn. Nos.	Value Points	Total
	<p>Ans. :</p>  <p>a) Ammeter b) Anode.</p>	2
26.	<p>Write the chemical equation indicating the preparation of carborundum using silicon. Write any one use of carborundum.</p> <p>Ans. :</p> $\text{Si} + \text{C} = \text{SiC}$ <p>Uses :</p> <ul style="list-style-type: none"> i) In wheels used for sharpening knives and scissors. ii) To polish granite. iii) In cutting and grinding tools. iv) Use it as pencil sharpener. <p>(Any two)</p>	1 $\frac{1}{2} + \frac{1}{2}$ 2
30.	<p>(a) What is fermentation ? Name the gas usually produced during fermentation.</p> <p>(b) What is substrate ?</p> <p style="text-align: center;">OR</p> <p>(a) What is molasses ?</p> <p>(b) Mention the two uses of Caramel.</p>	

Qn. Nos.	Value Points	Total
	<p>Ans. :</p> <p>a) Fermentation : A chemical decomposition produced by micro-organisms on certain organic matters. 1</p> <p>Gas : Carbon dioxide. $\frac{1}{2}$</p> <p>b) Substrate : The matter which undergoes fermentation. $\frac{1}{2}$</p> <p style="text-align: center;">OR</p> <p>a) The uncrystallised, viscous brown coloured syrup of sugar cane. 1</p> <p>b) i) Preservative</p> <p>ii) To impart characteristic colour and flavour to food.</p> <p>iii) To make hard boiled sugar candy, and to coat chocolates. $\frac{1}{2} + \frac{1}{2}$</p> <p>(Any two)</p>	2
32.	<p>Write the molecular formula and structural formula of marsh gas. Why is it called marsh gas ?</p> <p style="text-align: center;">OR</p> <p>Why graphite and diamond are called allotropes of carbon ? Name the two artificially synthesised allotropes of carbon.</p> <p>Ans. :</p> <p>CH₄ : $\frac{1}{2}$</p> $\begin{array}{c} \text{H} \\ \\ \text{H} - \text{C} - \text{H} \\ \\ \text{H} \end{array}$ <p style="text-align: right;">$\frac{1}{2}$</p> <p>It is formed in the marshy places by the bacterial decomposition of the vegetable matter. 1</p> <p style="text-align: center;">OR</p> <p>As they are chemically identical and physically differ. 1</p> <p>Fullerene $\frac{1}{2}$</p> <p>Graphene $\frac{1}{2}$</p>	2

Qn. Nos.	Value Points	Total
33.	<p>A student adds nitric acid to a test tube having copper turnings and observes the changes in the test tube. He correctly concludes that moderately concentrated nitric acid was added to the test tube. Give scientific reasons for his conclusion. Write the balanced chemical equation indicating this reaction.</p> <p>Ans. :</p> <p>Due to the reaction of moderately concentrated nitric acid and copper turnings, the student saw the colourless nitric oxide gas in the column from reactants to the mouth of the test tube and reddish brown fumes of nitrogen dioxide above the mouth of the test tube.</p> $3\text{Cu} + 8\text{HNO}_3 \rightarrow 3\text{Cu}(\text{NO}_3)_2 + 2\text{NO} \uparrow + 4\text{H}_2\text{O}$	<p>1</p> <p>1</p> <p>2</p>
36.	<p>What is isomerism ? Write the structural formula of isobutane.</p> <p>Ans. :</p> <p>Isomerism : The phenomenon in which organic compounds are having same molecular formula with different structural arrangement of atoms. 1</p> <p>Isobutane :</p> $ \begin{array}{c} \text{H} \quad \text{H} \quad \text{H} \\ \quad \quad \\ \text{H} - \text{C} - \text{C} - \text{C} - \text{H} \\ \quad \quad \\ \text{H} \quad \quad \text{H} \\ \quad \text{H} - \text{C} - \text{H} \\ \quad \\ \quad \text{H} \end{array} $	<p>1</p> <p>2</p>
41.	<p>Write the balanced chemical equations of the reactions taking place in the manufacture of ethyl alcohol from molasses.</p> <p>Ans. :</p> $\text{C}_{12}\text{H}_{22}\text{O}_{11} + \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{C}_6\text{H}_{12}\text{O}_6$ $\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 2\text{C}_2\text{H}_5\text{OH} + 2\text{CO}_2 \uparrow$	<p>1</p> <p>1</p> <p>2</p>
43.	<p>List any four physical properties of metals.</p> <p>Ans. :</p> <p>i) Solids at room temperature (<i>except</i> Mercury and Gallium)</p> <p>ii) Sonorous</p> <p>iii) Conduct electricity</p> <p>iv) Conduct heat</p> <p>v) Malleable and ductile</p> <p>vi) Lustrous.</p> <p>(Any four)</p>	<p>$4 \times \frac{1}{2}$</p> <p>2</p>

Qn. Nos.	Value Points	Total
48.	Draw the diagram of the apparatus used in the extraction of aluminium from alumina, and label the following parts. (a) Electrode connected to graphite (b) Molten aluminium.	
	Ans. :	
		
	a) Electrode connected to graphite → anode	
	b) Molten aluminium.	(2 + $\frac{1}{2}$ + $\frac{1}{2}$)
		3
51.	(a) Why are oils converted into solid fats ? What is the role of nickel in this process ?	
	(b) Write the molecular formula and structural formula of fourth member of alkenes and alkynes.	
	OR	
	(a) Write the structural formula of Glycerol and Salicylic acid.	
	(b) Explain the steps in the process of saponification.	
	Ans. :	
	a) i) To make them saturated.	
	ii) To increase the shelf life	
	iii) To facilitate easy transportation. (Any two) — $2 \times \frac{1}{2}$	1
	Nickel : As a catalyst.	1

Qn. Nos.	Value Points	Total
b)	i) C_5H_{10} : $\frac{1}{2}$ $\begin{array}{ccccccc} & & H & H & H & & \\ & & & & & & \\ H & \diagdown & C & - & C & - & C & - & C & - & C & - & H \\ & / & & & & & & & & & & & \\ & & H & & H & & H & & H & & H & & \end{array}$ ii) C_5H_8 : $\frac{1}{2}$ $\begin{array}{ccccccc} & & H & H & H & & \\ & & & & & & \\ H & - & C & \equiv & C & - & C & - & C & - & C & - & H \\ & & & & & & & & & & & & \\ & & H & & H & & H & & H & & H & & \end{array}$ OR	4
a)	i) Glycerol : $\frac{1}{2}$ $\begin{array}{ccccccc} & & OH & OH & OH & & \\ & & & & & & \\ H & - & C & - & C & - & C & - & H \\ & & & & & & & & \\ & & H & & H & & H & & \end{array}$ ii) Salicylic acid : $\frac{1}{2}$ $\begin{array}{c} OH \\ \\ \text{C}_6\text{H}_4 \\ \\ COOH \end{array} \quad \text{OR} \quad \begin{array}{c} OH \\ \\ \text{C}_6\text{H}_4 \\ \\ COOH \end{array}$ $1 + 1$	
b)	i) Hydrolysis of fat or oil into carboxylic acid and glycerol. 1 ii) Formation of salt of the fatty acid by sodium hydroxide or potassium hydroxide. 1	4