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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, ಸೆಪ್ಟೆಂಬರ್, 2020

S.S.L.C. EXAMINATION, SEPTEMBER, 2020

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 28. 09. 2020]

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Chem.)**

Date : 28. 09. 2020]

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

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ರಸಾಯನಶಾಸ್ತ್ರ / Chemistry)

(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

(ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

[ಗರಿಷ್ಠ ಅಂಕಗಳು : 80

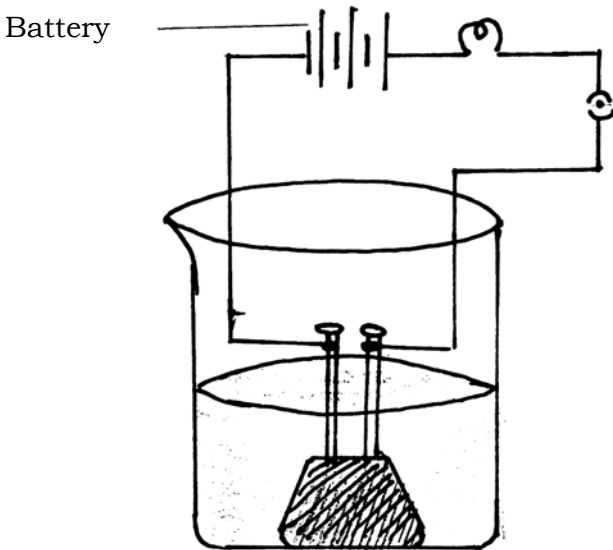
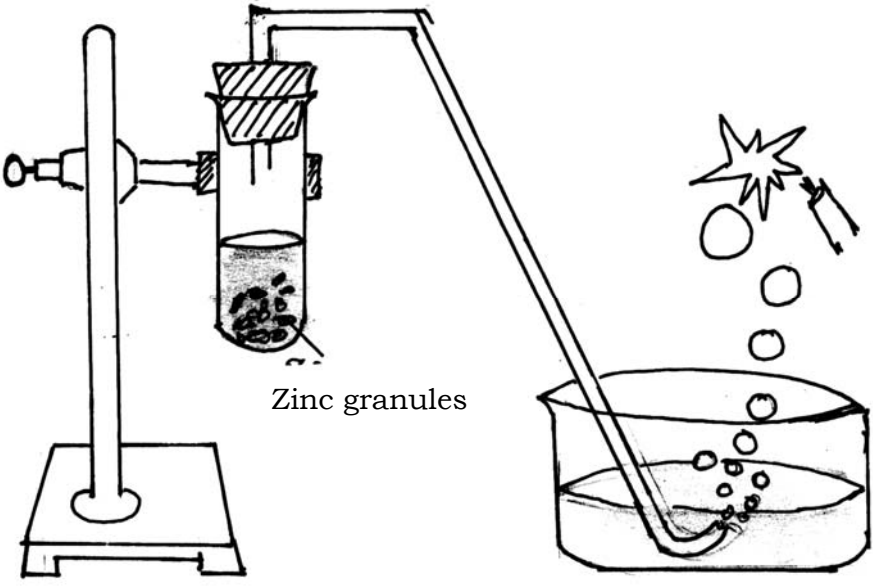
[Max. Marks : 80

Qn. Nos.	Value Points	Total
2.	Identify the correct electron dot structure of nitrogen molecule in the following : (A) :N::N: (B) $\text{:}\ddot{\text{N}}\cdot\cdot\ddot{\text{N}}\text{:}$ (C) $\cdot\ddot{\text{N}}\text{:}\ddot{\text{N}}\cdot$ (D) $\cdot\text{N::N}\cdot$ Ans. : (A) :N::N:	1
4.	The atomic numbers of elements A, B, C and D are 3, 9, 4 and 8 respectively. Elements having metallic nature among these are (A) B and D (B) A and B (C) A and C (D) B and C. Ans. : (C) A and C	1

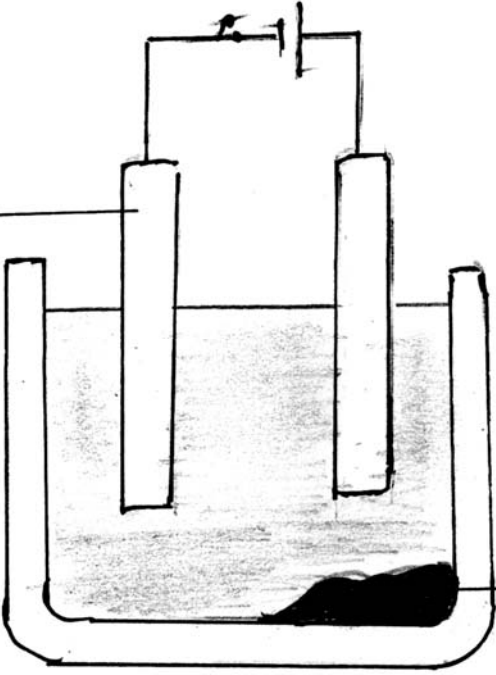
RR (A)-1124 ★ (MA) (CHE)

[Turn over

Qn. Nos.	Value Points	Total
8.	<p>The name and the molecular formula of the unsaturated hydrocarbon having general formula $C_n H_{2n}$ and containing 3 carbon atoms is</p> <p>(A) propane, $C_3 H_8$ (B) Cyclopropane, $C_3 H_6$ (C) Propyne, $C_3 H_4$ (D) Propene, $C_3 H_6$.</p> <p>Ans. :</p> <p>(D) Propene, $C_3 H_6$.</p>	1
10.	<p>What are amphoteric oxides ?</p> <p>Ans. :</p> <p>Metallic oxides that show both acidic and basic behaviour are called amphoteric oxides.</p>	1
12.	<p>Can detergent be used to test hardness of water ? Give reason.</p> <p>Ans. :</p> <p>No $\frac{1}{2}$</p> <p>Detergents give foam / lather with both hard water and soft water and do not form scum. $\frac{1}{2}$</p>	1
15.	<p>Manufacturers of chips, flush the packets of chips with nitrogen gas. Why ?</p> <p>Ans. :</p> <p>To prevent the chips from getting oxidised. OR To prevent rancidity.</p>	1
18.	<p>Draw the diagram of the arrangement of apparatus to show that acid solution in water conducts electricity and label the battery.</p> <p style="text-align: center;">OR</p> <p>Draw the diagram of the arrangement of apparatus showing the reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning and label the zinc granules.</p>	

Qn. Nos.	Value Points	Total
	<p>Ans. :</p>  <p style="text-align: center;">Diagram — 1 ¹/₂</p> <p style="text-align: center;">Label — 1 ¹/₂</p> <p style="text-align: right;">2</p> <p style="text-align: center;">OR</p>  <p style="text-align: center;">Part — 1 ¹/₂</p> <p style="text-align: center;">Diagram — 1 ¹/₂</p> <p style="text-align: right;">2</p>	

Qn. Nos.	Value Points	Total
22.	<p>How are the limitations of Mendeleev's periodic table rectified in the modern periodic table ?</p> <p style="text-align: center;">OR</p> <p>How does the atomic size vary in groups and periods of the modern periodic table ? Why ?</p> <p>Ans. :</p> <ul style="list-style-type: none"> ★ In Mendeleev's periodic table, since the elements were arranged based on increasing order of atomic mass, the sequence was inverted so that the elements with the similar properties could be grouped together (For example, Cobalt appeared before Nickel) Isotopes did not have any places. 1 ★ Limitations of Mendeleev periodic table were rectified in the modern periodic table by arranging the elements in the increasing order of atomic number and also electronic configuration. 1 ★ The problem of isotopes was solved. (Full mark can be credited if only the second and third points are written) <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> ★ Atomic size increases down the group. $\frac{1}{2}$ ★ Because new shells are being added as we go down the group, this increases the distance between the outermost electrons and the nucleus. $\frac{1}{2}$ ★ The atomic size decreases on moving from left to right along a period. $\frac{1}{2}$ ★ Because an increase in nuclear charge tends to pull the electrons closer to the nucleus. $\frac{1}{2}$ 	2
24.	<p>Draw the diagram of the apparatus used in refining of copper from copper sulphate solution. Label the following parts :</p> <ul style="list-style-type: none"> i) Cathode ii) Anode mud. 	2

Qn. Nos.	Value Points	Total
	<p data-bbox="261 320 347 349">Ans. :</p> <div data-bbox="316 376 1292 1048" style="text-align: center;">  </div> <p data-bbox="1007 1088 1310 1122">Diagram — 1</p> <p data-bbox="1007 1133 1310 1182">Part — $\frac{1}{2} + \frac{1}{2}$</p>	2
26.	<p data-bbox="261 1227 1326 1458">Strips of zinc, iron, magnesium and copper are taken in the test tubes A, B, C and D respectively. Same quantity of ferrous sulphate solution is added to these test tubes. In which test tubes chemical reaction will occur? Why? Write the chemical equations for the reactions taking place here.</p>	
	<p data-bbox="261 1487 347 1516">Ans. :</p> <ul style="list-style-type: none"> <li data-bbox="261 1554 1310 1583">★ Chemical reaction occurs in test tubes A and C. 1 <li data-bbox="261 1615 1326 1742">★ Because zinc and magnesium are more reactive than iron. OR Zinc and magnesium are found above iron in the reactivity series of metals. 1 <li data-bbox="261 1774 1310 1924">★ Zinc + Ferrous sulphate → Zinc sulphate + Iron OR $\text{Zn} + \text{FeSO}_4 \rightarrow \text{ZnSO}_4 + \text{Fe}$ $\frac{1}{2}$ 	

Qn. Nos.	Value Points	Total
	<p>★ Magnesium + Ferrous sulphate \rightarrow Magnesium sulphate + Iron</p> <p style="text-align: center;">OR</p> $\text{Mg} + \text{FeSO}_4 \rightarrow \text{MgSO}_4 + \text{Fe}$	$\frac{1}{2}$
29.	<p>Write the balanced chemical equations for the following chemical reactions. How can we confirm by observation that these chemical reactions are taking place ?</p> <p>a) Lead nitrate is heated.</p> <p>b) Sodium sulphate reacts with Barium chloride.</p> <p>Ans. :</p> <p>a) $2\text{Pb}(\text{NO}_3)_2 \rightarrow 2\text{PbO} + 4\text{NO}_2 + \text{O}_2$</p> <p style="padding-left: 40px;">By the formation of brown coloured fumes.</p> <p>b) $\text{Na}_2\text{SO}_4 + \text{BaCl}_2 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$</p> <p style="padding-left: 40px;">By the formation of white coloured precipitate.</p>	3
32.	<p>Write the molecular formulae and two uses of each of the following compounds :</p> <p>a) Bleaching powder</p> <p>b) Plaster of Paris.</p> <p style="text-align: center;">OR</p> <p>What is a strong acid ? Explain how tooth decay is caused. How can it be prevented ?</p> <p>Ans. :</p> <p>a) CaOCl_2</p> <p style="padding-left: 40px;">Uses</p> <ul style="list-style-type: none"> ★ for bleaching cotton and linen in the textile industry, for bleaching wood pulp in paper factories and for bleaching washed clothes in laundry. ★ as an oxidising agent in many chemical industries ★ to make drinking water free from germs. <p style="text-align: right;">(Any two uses)</p>	3

Qn. Nos.	Value Points	Total	
b)	$\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ Uses ★ for making toys ★ making materials for decoration ★ for making surfaces smooth. (Any two uses)	$\frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$	3
	OR		
★	Acid that gives rise to more H^+ ions is said to be strong acid.	1	
★	Bacteria present in the mouth produce acids by degradation of sugar and food particles remaining in the mouth after eating. So the pH in the mouth decreases and the tooth enamel gets corroded.	1	
★	Using toothpastes which are generally basic, for cleaning the teeth.	1	3
34.	a) What are structural isomers ? Write two structures of butane molecule.		
	b) How would you distinguish experimentally between an alcohol and a carboxylic acid ?		
	Ans. :		
a)	★ Carbon compounds with identical molecular formula but different structures are called structural isomers.	1	
★	$\begin{array}{cccc} \text{H} & \text{H} & \text{H} & \text{H} \\ & & & \\ \text{H}-\text{C} & -\text{C} & -\text{C} & -\text{C}-\text{H} \\ & & & \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array}$	$\frac{1}{2}$	
★	$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{H} \\ \quad \quad \\ \text{H} \quad \text{H} \quad \text{H} \end{array} \quad \text{OR} \quad \begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{H} \\ \quad \\ \text{H} \quad \text{H} \end{array} \quad \begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{H} \\ \quad \\ \text{H} \quad \text{H} \end{array}$	$\frac{1}{2}$	
b)	Carboxylic acid reacts with carbonates and hydrogen carbonates to give rise to a salt, carbon dioxide and water.	1	
	Alcohol will not react with carbonates and hydrogen carbonates.	1	4