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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 — 2018

S. S. L. C. EXAMINATION, MARCH/APRIL, 2018

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 02. 04. 2018] ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Chem.)**

Date : 02. 04. 2018] **CODE NO. : 83-E (Chem.)**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ರಸಾಯನಶಾಸ್ತ್ರ / **Chemistry**)

(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

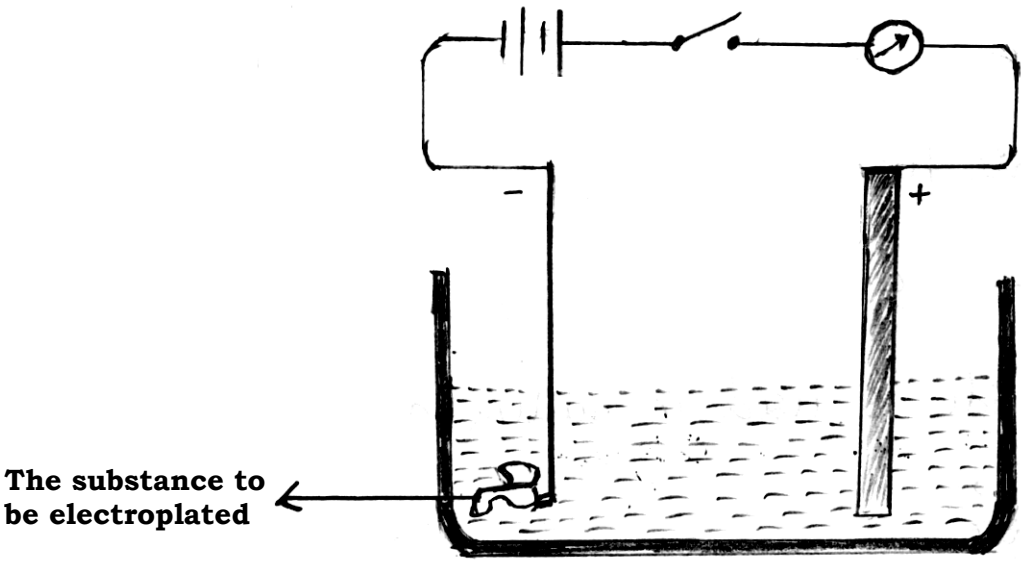
(ಶಾಲಾ ಅಭ್ಯರ್ಥಿ & ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Fresh & Regular Repeater)
(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

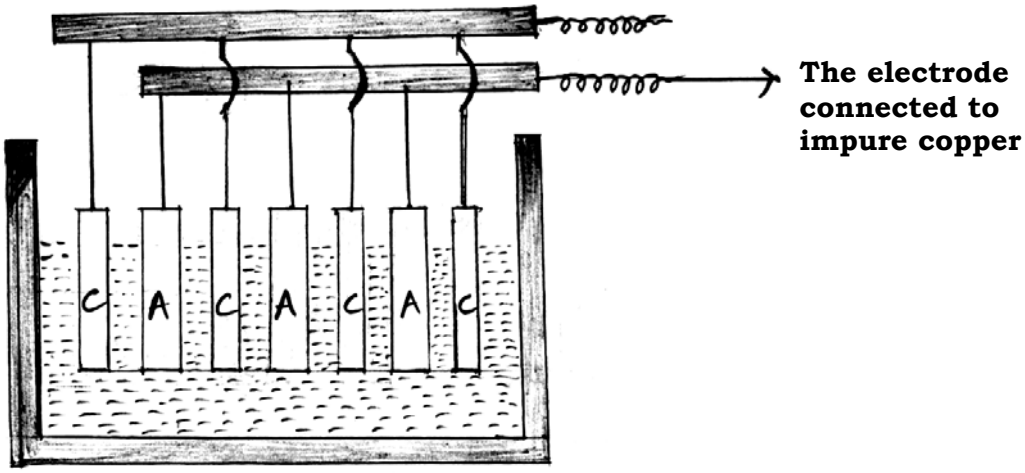
[ಗರಿಷ್ಠ ಅಂಕಗಳು : **80**

[Max. Marks : 80

Qn. Nos.	Value Points	Total
3.	Identify a property of amorphous silicon in the following. *Ans.* : (C) — Oxidizes at the surface level when heated in the air	1
10.	The group of compounds which dissociate partially in aqueous solution is *Ans.* : (B) — Carbonic acid, Phosphoric acid	1
11.	The processes related to organic compounds are given in **Column-A** and their procedures are given in **Column-B**. Match them and write the answer along with its letters : ***Column - A*** — ***Column - B*** (A) Preparation of Methane gas — (i) Production of salts of fatty acids starting from oils or fats (B) Substitution reaction — (ii) Conversion of liquid oils into solid saturated fats (C) Hydrogenation — (iii) Heating fused sodium acetate with sodalime	

Qn. Nos.	Value Points	Total
	(D) Saponification (iv) Heating an aqueous solution of ammonium cyanate (v) Burning of methane in air (vi) Heating ethanol in the presence of acidified potassium permanganate (vii) Exposing the mixture of methane and chlorine to ultraviolet light. *Ans.* : *Column-A* — *Column-B* (A) (iii) Heating fused sodium acetate with sodalime 1 (B) (vii) Exposing the mixture of methane and chlorine to ultraviolet light. 1 (C) (ii) Conversion of liquid oils into solid saturated fats 1 (D) (i) Production of salts of fatty acids starting from oils or fats 1	4
16.	How is silicon carbide prepared ? Write one of its uses. Ans. : Heating the mixture of silicon and coke in an electric furnace. $\frac{1}{2}$ or $Si + C \rightarrow SiC$ Silicon carbide is used in i) cutting and grinding tools, ii) polishing granite. (any *one*) $\frac{1}{2}$	1
17.	In the manufacture of sugar, the container of the sugarcane juice is connected to a vacuum pump. Why ? *Ans.* : ★ to evaporate water at low temperature / pressure ★ to obtain sugar at low temperature ★ evaporation is smooth. (any *two*) $\frac{1}{2}+\frac{1}{2}$	1
19.	"Manufacture of ethyl alcohol from molassess is a good example for fermentation." Give reasons. *Ans.* : As in fermentation, ★ Sucrose undergoes decomposition reaction by the action of yeast 1 ★ Temperature range is maintained around 308 K 1 ★ Molasses is diluted with water 1 ★ Carbon dioxide gas is liberated during the reaction 1 ★ The enzymes (invertase, zymase) take part in this reaction. 1 (Any *two*)	2

Qn. Nos.	Value Points	Total
24.	Draw the diagram of the apparatus used in electroplating and label the following part : The substance to be electroplated. *Ans.* :  For the figure — $1\frac{1}{2}$ Correct part — $\frac{1}{2}$	2
27.	State Boyle's law. Write the mathematical form of Boyle's law. Give an example for this law. OR State Graham's law of diffusion. Write the mathematical form of Graham's law of diffusion. Give an example for this law. *Ans.* At constant temperature, the volume of a given mass of dry gas is inversely proportional to its pressure. 1 $V \propto \frac{1}{P}$ OR $V = K \times \frac{1}{P}$ OR $PV = K$. $\frac{1}{2}$	

Qn. Nos.	Value Points	Total
	Examples : ★ Deep sea fishes die when they brought suddenly to surface ★ Scuba diver's life is under threat when he suddenly come to the surface quickly ★ Popping of balloon when squeezed ★ We often feel a very uneasy pain in ears while in a plane during ascending or descending. (Any other suitable example) (any *one*) $\frac{1}{2}$	2
	OR The rate of diffusion of a gas is inversely proportional to the square root of its density at the given temperature and pressure. 1 $r \propto \frac{1}{\sqrt{d}}$ or $r = K \times \frac{1}{\sqrt{d}}$ or $K = r\sqrt{d}$ or $r \propto \frac{1}{\sqrt{m}}$ (any *one*) $\frac{1}{2}$ *Examples* : ★ HCl vapour diffuses slowly than ammonia $\frac{1}{2}$ (any other suitable example)	2
30.	Draw the diagram of an electrolytic cell used in the purification of copper and label the electrode having impure copper. *Ans.* :  For the figure — $1\frac{1}{2}$ Correct part — $\frac{1}{2}$	2

Qn. Nos.	Value Points	Total
32.	The molecular formula of the first member of a certain group of organic compounds is CH_2O (HCHO). Determine the name and the molecular formula of the third member of this group if the members of this group are in homologous series. What is the general name for this group of organic compounds ? *Ans.* : Name → Propanal / Propanaldehyde. $\frac{1}{2}$ Molecular formula → C_3H_6O (C_2H_5CHO) (Any *one*) 1 Aldehydes. $\frac{1}{2}$	2
33.	How is safety glass manufactured ? Mention the use of safety glass. OR Name the types of paper having the following properties and mention one use of each. (i) Porous and semipermeable (ii) Non-sticking property. *Ans.* : Safety glass is made by sandwiching thin layer of synthetic vinyl plastic in between the glass sheets. $\frac{1}{2}$ It is subjected to slight pressure and is heated till the glass layers $\frac{1}{2}$ and plastic layers merge into one another. On cooling glass becomes tough. $\frac{1}{2}$ It is used in automobiles & aeroplane industries as wind shield. $\frac{1}{2}$ OR i) Filter paper $\frac{1}{2}$ Used to separate fine solids from liquids or air / used in dip tea bags. (any *one*) $\frac{1}{2}$ ii) Wax paper $\frac{1}{2}$ Used in wrapping food for storage such as ice-creams and cookies. $\frac{1}{2}$	2 2

Qn. Nos.	Value Points	Total
39.	The atomic numbers of five elements *A, B, C, D* and *E* are 6, 8, 3, 7 and 9 respectively. (i) Which is the element having the highest electropositivity among these elements ? Why ? (ii) Which is the element having the least metallic character among these elements ? Why ? (iii) What is your conclusion about the relationship between metallic character and electropositivity of an element ? *Ans.* : i) *C.* $\frac{1}{2}$ This element comes first in the second period / The electropositivity decreases along the period / It has only one electron in the outermost shell & can donate electron. $\frac{1}{2}$ ii) *E.* $\frac{1}{2}$ This element is towards the end of second period / The metallic character decreases along the period / It accepts electrons. $\frac{1}{2}$ iii) As the electropositivity increases metallic character also increases. or As the electropositivity decreases, metallic character also decreases. or Electropositivity and metallic character are directly related. 1	3

Qn. Nos.	Value Points	Total
41.	(a) Observe the following chemical equations : (i) $Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2O$ (ii) $Al_2O_3 + 6HCl \rightarrow 2AlCl_3 + 3H_2O$. What is the conclusion that you take about the nature of aluminium oxide with the help of these equations. Give reason for your conclusion. (b) Molten cryolite is mixed with molten alumina in the extraction of aluminium by electrolysis. Why ? Name the substances that are used as anode and cathode in this method. *Ans.* : a) Aluminium oxide is amphoteric in nature. 1 Aluminium oxide is reacting with base in the first equation to give salt & water. $\frac{1}{2}$ It is reacting with acid in the second equation to give salt and water. $\frac{1}{2}$ Hence it is an amphoteric oxide. b) ★ Molten cryolite acts as a solvent for alumina. It forms an electrolyte at low temperature. $\frac{1}{2}$ ★ High temperature electrolysis can be avoided, which prevents the loss of aluminium in the form of vapours. $\frac{1}{2}$ ★ Anode $\rightarrow$ Graphite rods $\frac{1}{2}$ ★ Cathode $\rightarrow$ Carbon lining. $\frac{1}{2}$	4