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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, 2019

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 24. 06. 2019] ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Chem.)**

Date : 24. 06. 2019] **CODE NO. : 83-E (Chem.)**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ರಸಾಯನಶಾಸ್ತ್ರ / **Chemistry**)

(ಹಳೆ ಪಠ್ಯಕ್ರಮ / Old Syllabus)

(ಪುನರಾವರ್ತಿತ ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / Private Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

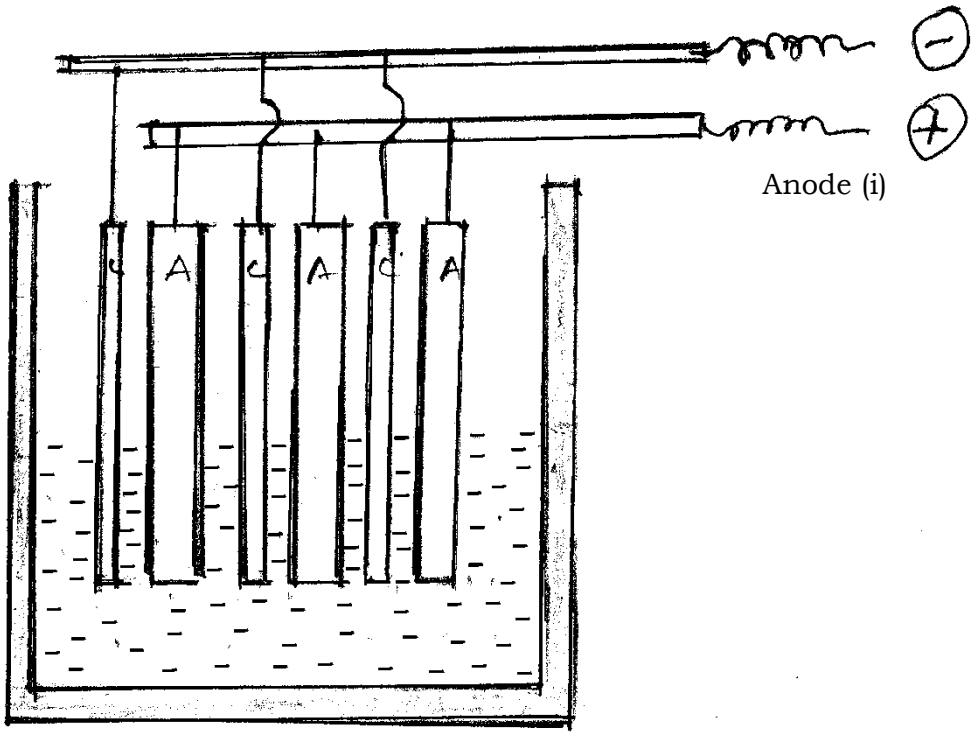
[ಗರಿಷ್ಠ ಅಂಕಗಳು : **100**

[Max. Marks : 100

Qn. Nos.	Value Points	Total
2.	Which of the following elements has Octet Electronic Configuration ? (A) Sodium (atomic number is 11) (B) Argon (atomic number is 18) (C) Calcium (atomic number is 20) (D) Lithium (atomic number is 3). *Ans.* : (B) — Argon (atomic number is 18)	1

Qn. Nos.	Value Points	Total
5.	In the preparation of Jaggery, the compound used to slightly eliminate the dark colour of Jaggery is (A) norit (B) hydrosol (C) celotex (D) cellulose. *Ans.* : (B) — hydrosol	1
9.	The compound that has greater rate of diffusion among C_2H_6, C_3H_6, CH_4 and C_4H_{10} at normal temperature and pressure is (A) C_2H_6 (B) C_3H_6 (C) C_4H_{10} (D) CH_4. Ans. : (D) — CH_4	1

Qn. Nos.	Value Points	Total
11.	Match the names of organic compounds given in **Column-A** with their molecular formula given in **Column-B** and write the answer along with its letters : ***Column - A*** ***Column - B*** (A) Butyne (i) C_6H_6 (B) Methane (ii) C_4H_8 (C) Propene (iii) C_4H_6 (D) Benzene (iv) CH_4 (v) C_3H_8 (vi) C_6H_{12} (vii) C_3H_6 *Ans.* : (A) — (iii) C_4H_6 (B) — (iv) CH_4 (C) — (vii) C_3H_6 (D) — (i) C_6H_6 4×1	4
13.	State Boyle's law. *Ans.* : At constant temperature the volume of a given mass of dry gas is inversly proportional to its pressure.	1
15.	Write the ground state electronic configuration of carbon atom. *Ans.* : $1s^2 \ \ 2s^2 \ \ 2p^2$	1

Qn. Nos.	Value Points	Total
18.	*n*-butane and iso-butane are called isomers. Why ? *Ans.* : Same molecular formula but different structural formulae.	1
20.	Draw the diagram of the apparatus used in refining of copper. Label the following parts : (i) Anode (ii) Cathode. *Ans.* : Cathode (ii)  (1 + $\frac{1}{2}$+$\frac{1}{2}$)	2

Qn. Nos.	Value Points	Total
23.	A part of the modern periodic table is given below. Observe the table and answer the questions :	

$_{5}B^{11}$	$_{6}C^{12}$	$_{7}N^{14}$	$_{8}O^{16}$
$_{13}Al^{27}$	$_{14}Si^{28}$	$_{15}P^{31}$	

Name the element which has

(i) highest ionisation energy

(ii) highest atomic size

Ans. :

(i) $_{8}O^{16}$

(ii) $_{13}Al^{27}$ 1 + 1 2

26. Explain the method of extraction of amorphous silicon.

OR

Write the chemical equations for the following chemical reactions :

(i) Silicon reacts with oxygen

(ii) Silicon reacts with steam.

Ans. :

Qn. Nos.	Value Points	Total
29.	Finely powdered silica (sand or quartz) is mixed with magnesium powder and heated in a fire-clay crucible, magnesium oxide and silicon is formed. 1 $SiO_2 + 2Mg \xrightarrow{heat} Si + 2MgO$ Dilute hydro-fluoric acid is used to remove unreacted silica. Dilute hydrochloric acid is used to dissolve magnesium oxide. 1	2
	OR	
	(i) $Si + O_2 \rightarrow SiO_2$ 1 (ii) $Si + 2H_2O \rightarrow SiO_2 + 2H_2\uparrow$ 1	2
	Mention the raw materials used in the manufacture of glass.	
	OR	
	Mention the type of paper used in the following : (i) Post card (ii) Dip tea bags. *Ans.* : (i) Soda ash (Na_2CO_3) $\frac{1}{2}$ (ii) Limestone ($CaCO_3$) $\frac{1}{2}$ (iii) Sand (SiO_2) $\frac{1}{2}$ (iv) Pieces of broken glass. $\frac{1}{2}$	2
	OR	
	(i) Card board paper 1 (ii) Filter paper. 1	2

Qn. Nos.	Value Points		Total
33.	Mention the steps involved in the manufacture of sucrose from sugarcane.		
	OR		
	Write the balanced chemical equations for the chemical reactions taking place in the conversion of sucrose into ethanol.		
	Ans. :		
	(i) Extraction of the juice from the source	$\frac{1}{2}$	
	(ii) Purification of the juice	$\frac{1}{2}$	
	(iii) Concentration and Crystallization	$\frac{1}{2}$	
	(iv) Separation and drying of crystals.	$\frac{1}{2}$	2
	OR		
	$C_{12}H_{22}O_{11} + H_2O \xrightarrow[\text{Invertase}]{\text{Enzyme}} C_6H_{12}O_6 + C_6H_{12}O_6$		
	Sucrose Glucose Fructose	1	
	$C_6H_{12}O_6 \xrightarrow[\text{Invertase}]{\text{Enzyme}} 2\,C_2H_5OH + 2CO_2 \uparrow$		
	Glucose or fructose Ethanol Carbon dioxide	1	2

Qn. Nos.	Value Points	Total
37.	Write any two differences between crystalline silicon and amorphous silicon. *Ans.* :	

Amorphous Silicon	*Crystalline Silicon*
★ It is a brown powder	★ It is a dark grey, crystalline solid. Roughly resembles the structure of diamond.
★ It does not conduct electricity at low temperature	★ Slightly conducts electricity
★ More reactive	★ Less reactive
★ When heated in the air, it oxidizes at the surface level and it catches fire	★ It does not burn in the air even when heated.

(Any *two*) (1 + 1) 2

40. Write any two advantages of optic fibres.

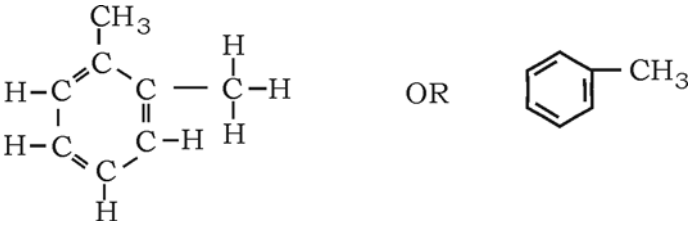
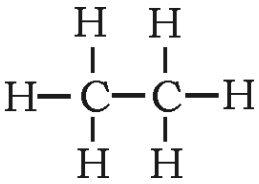
Ans. :

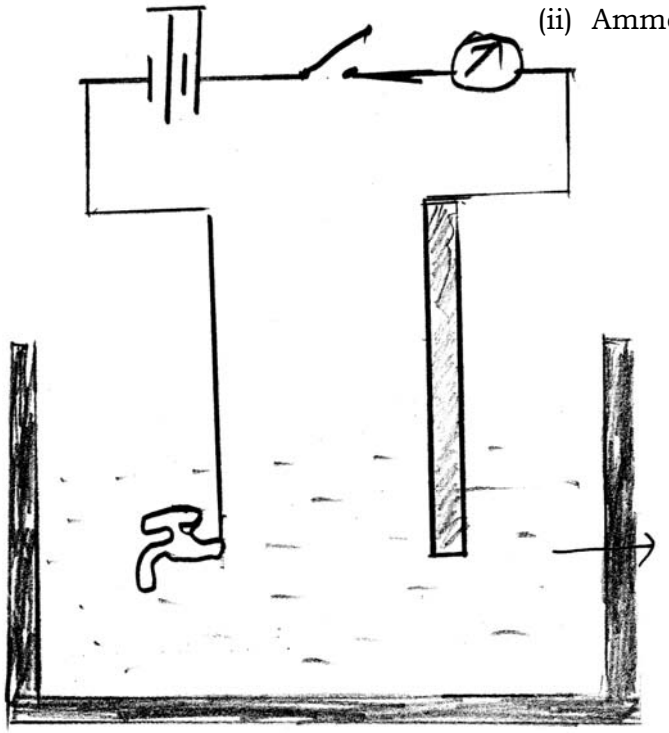
(i) Optic fibres does not interact with air, water and it never corrodes.

(ii) Message reaches the destination much faster since photons transmit much faster than electrons.

(iii) Optic fibres are more efficient than metallic wires because they transmit more messages at once.

(Any *two*) (1 + 1) 2

Qn. Nos.	Value Points	Total
42.	Write the structural formula for the following compounds : (i) Toluene (ii) Ethane. *Ans.* : (i) Toluene :  1 (ii) Ethane :  1	2
47.	Draw the diagram of the apparatus used in electroplating. Label the following parts : (i) Electrolyte (ii) Ammeter *Ans.* :	

Qn. Nos.	Value Points	Total
	 (ii) Ammeter (i) Electrolyte $2 + \frac{1}{2} + \frac{1}{2}$	3
51.	(a) What is the function of limestone and coke in the extraction of iron from haematite ?	
	(b) Mention the alloy in the preparation of the following :	
	(i) Permanent magnets	
	(ii) Bus coaches.	
	Ans. :	
	(a) *Limestone* :	
	$CaCO_3 \xrightarrow{heat} CaO + CO_2 \uparrow$	
	$CaO + SiO_2 \rightarrow CaSiO_3$ (*Slag*) 1	
	OR	

Qn. Nos.	Value Points			Total
	Limestone removes the silica present in the haematite and produces slag.			
	Coke : $2C + O_2 \rightarrow 2CO\uparrow$			
	$Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2\uparrow$		1	
	Coke acts as a reducing agent and converts haematite into molten iron.			
(b)	(i)	Alnico	1	
	(ii)	Duralumin.	1	4