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

KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD, MALLESHWARAM, BENGALURU, 560 003

ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ. ಪರೀಕ್ಷೆ, ಜೂನ್ / ಜುಲೈ, 2022

S.S.L.C. EXAMINATION, JUNE / JULY, 2022

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 27. 06. 2022] ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Chem.)**

Date : 27. 06. 2022] **CODE NO. : 83-E (Chem.)**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತ ವಿಜ್ಞಾನ, ರಸಾಯನ ವಿಜ್ಞಾನ ಮತ್ತು ಜೀವ ವಿಜ್ಞಾನ / Physics, Chemistry & Biology)

(ಪುನರಾವರ್ತಿತ ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / ಎನ್.ಎಸ್.ಆರ್. & ಎನ್.ಎಸ್.ಪಿ.ಆರ್.)

(Private Repeater / NSR & NSPR)

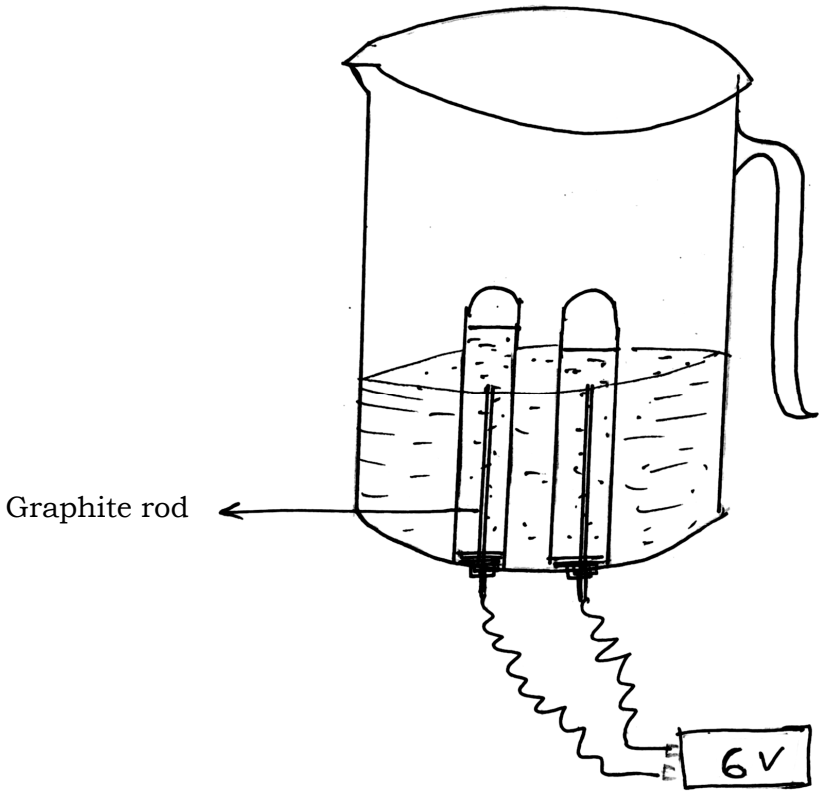
(ರಸಾಯನಶಾಸ್ತ್ರ / Chemistry)

(ಇಂಗ್ಲಿಷ್ ಮಾಧ್ಯಮ / English Medium)

[ಗರಿಷ್ಠ ಅಂಕಗಳು : **100**

[Max. Marks : 100

Qn. Nos.	Value Points	Total
	PART - B	
	(CHEMISTRY)	
VI.	Multiple choice : $2 \times 1 = 2$	
17.	The metal that displaces copper from copper sulphate solution is	
	(A) mercury (B) gold	
	(C) iron (D) silver	
	Ans. :	
	(C) iron	1

Qn. Nos.	Value Points	Total
18.	Number of single bonds found in the molecular structure of propanal is (A) 8 (B) 6 (C) 7 (D) 5 *Ans.* : (A) 8	1
VII.	Answer the following question : $1 \times 1 = 1$	
19.	State the modern periodic law. *Ans.* : 'The properties of elements are periodic functions of their atomic numbers.'	1
VIII.	Answer the following questions : $5 \times 2 = 10$	
20.	Draw the diagram of the arrangement of apparatus used to show the electrolysis of water and label the 'graphite rod'. *Ans.* : Electrolysis of water :  $1\frac{1}{2}+\frac{1}{2}$	2

Qn. Nos.	Value Points	Total
21.	The chemical reaction that takes place between sodium sulphate and barium chloride is called double displacement reaction. Why ? Write the balanced chemical equation for this reaction. OR What is the type of chemical reaction in which quicklime is obtained by lime stone (calcium carbonate) ? Write a chemical equation for this reaction. *Ans.* : There is an exchange of ions between the reactants sodium sulphate and barium chloride. 1 $Na_2SO_4 + BaCl_2 \longrightarrow BaSO_4 + 2NaCl.$ 1 OR Decomposition reaction or thermal decomposition reaction / endothermic reaction. 1 $CaCO_3 \xrightarrow{Heat} CaO + CO_2$ 1 (lime stone) (quick lime)	2 2
22.	Balance the following chemical equations : i) $Fe + H_2O \longrightarrow Fe_3O_4 + H_2$ ii) $Al + Cl_2 \longrightarrow AlCl_3$ *Ans.* : i) $3Fe + 4H_2O \longrightarrow Fe_3O_4 + 4H_2$ 1 ii) $2Al + 3Cl_2 \longrightarrow 2AlCl_3$ 1	2

Qn. Nos.	Value Points	Total
23.	Write any two uses of bleaching powder. *Ans.* : Bleaching powder is used i) for bleaching cotton and linen in the textile industry for bleaching wood pulp in paper industries and for bleaching washed cloths in laundry. ii) as an oxidising agent in many chemical industries iii) to make drinking water free from germs. (Any *two*)	2
24.	Write any two differences between the physical properties of metals and non-metals. *Ans.* :	

Metals	*Non-metals*
i) They have shining surface	i) They do not have shining surface
ii) Hard	ii) Soft / brittle except diamond
iii) Malleable and ductile	iii) Neither malleable nor ductile
iv) Good conductors of heat	iv) Bad conductors of heat
v) Good conductors of electricity	v) Non-conductors of electricity except graphite
vi) Sonorous	vi) Non-sonorous

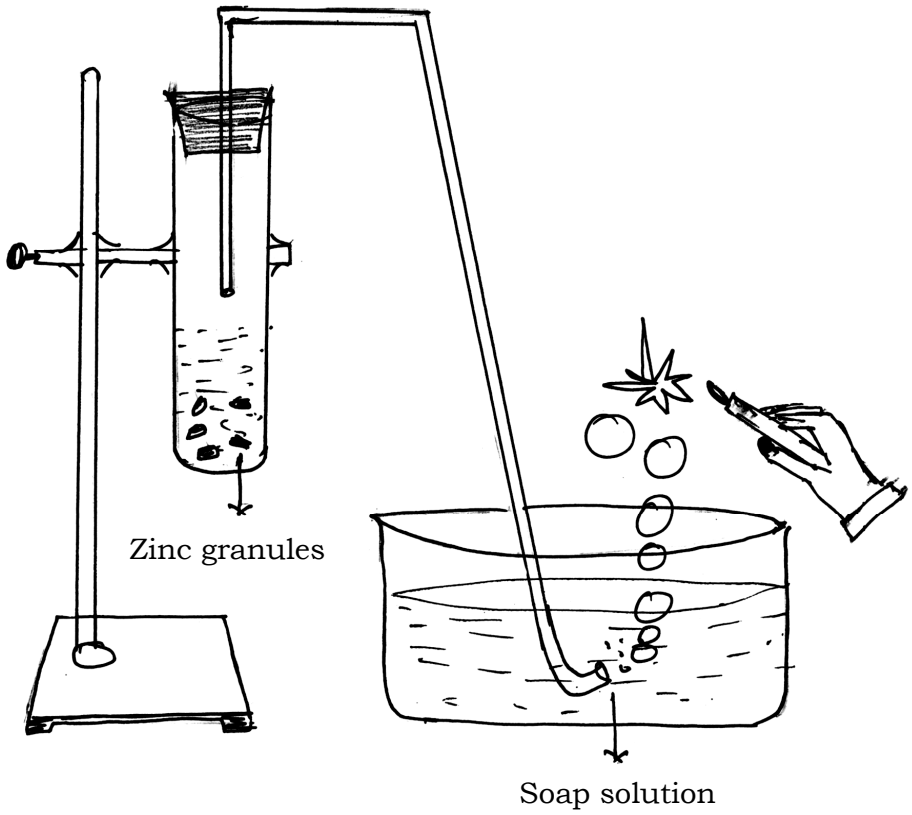
(Any *two*) — 1 + 1 — 2

IX. Answer the following questions : $3 \times 3 = 9$

25. Draw the diagram of arrangement of the apparatus to show the reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning. Label the following parts :

i) Zinc granules

ii) Soap solution.

Qn. Nos.	Value Points	Total
	Ans. :  Reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning. 2 + 1	3
26.	a) What is neutralisation reaction ? Give an example. b) What is the common name of the compound that has molecular formula $CaSO_4 . \frac{1}{2} H_2O$.	
	Ans. : a) Reaction between acids and bases to form salt and water is called neutralisation reaction. 1 OR	3

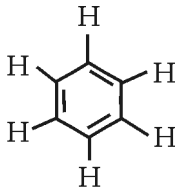
Qn. Nos.	Value Points	Total
	Base + Acid $\longrightarrow$ Salt + water. *Ex* : NaOH + HCl $\longrightarrow$ NaCl + H_2O. 1 [Consider any suitable example]	
	b) Calcium sulphate hemihydrate or Plaster of Paris. 1	
27.	Write the two reasons for placing oxygen and sulphur in a same group of modern periodic table. Which one of these elements has larger atomic size and why ? [Atomic number of oxygen = 8, Atomic number of sulphur = 16] OR Write the limitations of Mendeleev's periodic table. Why is silicon called metalloid ? *Ans.* : ★ They have same chemical properties. 1 ★ They have same valence electrons / they have similar electronic configuration in outermost shell. 1 ★ Sulphur has larger atomic size because atomic size increases down the group / New shells are being added as we go down the group. This increases the distance between outermost electron and the nucleus. 1 OR Limitations of Mendeleev's classification : ★ No fixed position was given to hydrogen ★ No fixed position was given to isotopes of all elements ★ The atomic masses from one element to the other do not increase in a regular manner ★ It is not possible to predict how many elements could be discovered between two elements. 2 Silicon is called metalloid because it exhibits some properties of both metals and non-metals. 1	3

Qn. Nos.	Value Points	Total
X.	Answer the following question : $1 \times 4 = 4$	
28.	a) Write any two differences between saturated and unsaturated carbon compounds.	
	b) Write the structural formula of the following carbon compounds :	
	i) Benzene	
	ii) Butane	

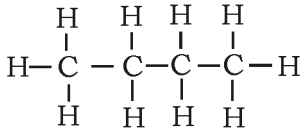
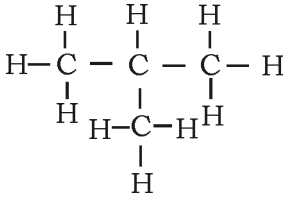
Ans. :

a) *Saturated carbon compounds*	*Unsaturated carbon compounds*
i) Single bond exists between two consecutive carbon atoms	i) Double and triple bond exists
ii) Less reactive	ii) More reactive
iii) Give clean flame when they burnt	iii) Give yellow / black flame
iv) Subjected to substitution reaction	iv) Subjected to both addition and substitution reactions
v) *Ex.* : Alkanes, cycloalkanes etc.	v) *Ex.* : Alkenes, alkynes, benzene etc.

(Any *two*) — 1 + 1 — 2

b)  — 1

Benzene

 OR  — 1 — 2

Butane

Qn. Nos.	Value Points	Total
XI.	Answer the following question : $1 \times 5 = 5$	
29.	a) Explain the formation of ionic bond between sodium atom and chlorine atom. [Atomic number of sodium is 11, Atomic number of chlorine is 17] b) List any four general properties of ionic compounds. *Ans.* : a) Electronic configuration of sodium atom is 2, 8, 1 Electronic configuration of chlorine atom is 2, 8, 7 To have stable octet configuration sodium loses its one valence electron, thus forms sodium cation (Na^+) and chlorine receives one electron to its valence shell, thus forms chloride anion (Cl^-). Due to the electrostatic force between oppositely charged Na^+ and Cl^- ions sodium chloride (NaCl) forms. [1 + 1 + 1] OR $Na \longrightarrow Na^+ + e^-$ (2, 8, 1 → 2, 8) 1 $Cl + e^- \longrightarrow Cl^-$ (2, 8, 7 → 2, 8, 8) 1 1 b) Properties of ionic compounds : i) Generally solids ii) Generally brittle and breaks into pieces when pressure is applied. iii) They have high melting and boiling points. iv) Soluble in water and not soluble in organic solvents. v) They do not conduct electricity is solid state / good conductors in molten or aqueous state. (Any *four*) $4 \times \frac{1}{2} = 2$	5