FIRST YEAR HIGHER SECONDARY EXAMINATION **PART III CHEMISTRY** MAXIMUM 60 SCORES

TIME: 2 HOURS **COOL OFF TIME: 15 MINUTES**

ANSV	VER ANY 4 QUESTIONS FROM 1 TO 5 .EACH CARRIES 1 MARK (4X1=4)
1.	Number of significant figures in 0.00730 is
2.	Number of neutrons in 20Ca ⁴⁰ is
3.	Which of the following is a nucleophile?
	a. OH
	b. BCl ₃
	c. H ⁺
	$\mathbf{d.} \mathbf{NH_4}^+$
4.	If 'S' is the solubility ,write the expression for solubility product of ALUMINIUM HYDROXIDE
5.	The hybridization of P in PCl ₅ is
ANSV	VER ANY 8 QUESTIONS FROM 6 TO 15 .EACH CARRIES 2 MARK (8x2=16)
6.	Write the difference between molarity and molality
	Write the principal quantum number, azimuthal quantum number for the following orbitals
	a. 2p
	b. 3d
	c. 4f
	d. 5s
	Write the modern periodic law
	He ₂ molecule do not exist. Why?
10	. Classify the following into extensive property and intensive property
	a . Mass
	b . Volume
	c . Density
	d. Molar volume
	e . Length
_	f . Enthalpy
	. Write the expression for Equilibrium Constant for the reaction $2SO_2+O_2 \longrightarrow 2SO_3$
12	. Calculate the oxidation number of Mn in KMnO4 and represent the stock notation of KMnO4

- 13. Draw the bond line representation of
 - a . CH₃-CH₂-CH-CH₃

- 14. Draw sawhorse structure of ethane molecule
- 15. Define ionization energy and explain its variation along the period

ANSWER ANY 8 QUESTIONS FROM 16 TO 25 .EACH CARRIES 3 MARK (8x3=24)

- 16. An organic compound analysis gave the following composition. Carbon 40%, hydrogen 6.66%, oxygen 53.47% .calculate its empirical and molecular formula (molar mass of the compound is 90)
- 17. State Heisenberg's uncertainity principle . give its significance 18.
 - a. What do you mean by isoelectronic species . give example
 - b. Give the IUPAC name of element having atomic number 108
- 19. Find the product A,B and C of the following reactions

- 20. Define hybridization .Explain the hybridization of NH₃ molecule.
- 21. Explain common ion effect with an example
- 22. Explain the detection of nitrogen by Lassaignes test.
- 23. Balance the following redox reaction by oxidation number method in acidic medium $Fe^{2+} + Cr_2O_7^{2-} \longrightarrow Fe^{2+} + Cr^{3+}$
- 24. Draw and Explain the determination lattice enthalpy of NaCl by Bohn Haber cycle
- 25. Write the postulates of Bohr atom model and write any two merits of Bohr atom model

ANSWER ANY 4 QUESTIONS FROM 26 TO 30 .EACH CARRIES 4 MARK (4x4=16)

26. a . State Le Chatelier's principle	(2)
b . What are the effects of the following changes in the equ	ilibrium process?
$N_{2(g)} + 3H_{2(g)} \longrightarrow 2NH_{3(g)}; \Delta H = -92.38 \text{ kJ/mol.}$	(2)
(A) Increasing the pressure	
(B) Increasing the temperature	
(C) Removal of NH ₃ from the reaction vessel.	
$f 27.$ Draw the molecular orbital diagram of $f O_2$ molecule .calcula	ate its bond order
28. CH ₃ -CH=CH ₂ +HBr	
a . Predict A and B .	(1)
b . Which is the major product	(1)
c . Identify the rule applied here	(1)
d . State that rule	(1)
29. a . What are the postulates of Rutherford atom model	(2)
b. Write the drawbacks of Rutherford atom model	(2)
30. a. CH ₃ -Br + Na Dry Ether	(1)
b . Name the above reaction	(1)
c.CH = CH Red hot iron tube / 87 3K	_ (1)
d. + CH ₃ Cl AlCl ₃	(1)