

St. JOSEPH'S COLLEGE (AUTONOMOUS) BANGALORE-27
B. Sc. CHEMISTRY- III SEMESTER
MID SEMESTER TEST: AUGUST - 2019
CH 318: CHEMISTRY

Instruction: This question paper has two printed pages and three parts.

Time: 1 hour

Max. Marks: 30

PART- A

Answer any four questions.

2 x 4 = 8

1. Explain briefly how intermolecular forces affect the solubility of methanol in water.
2. Draw the bond line structure of 3-methylcyclopentane and indicate the hybridization state of each carbon atom.
3. Li and Mg show similarity in properties. Why?
4. Why do Be and Mg not impart color to the Bunsen flame?
5. Draw the orbital overlap picture of acetylene.
6. Sketch a neat labeled atomic orbital picture of diborane .

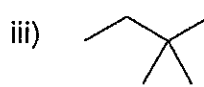
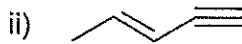
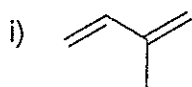
PART B

Answer any three of the following questions.

6 x 3 = 18

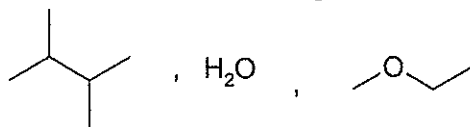
7. (a) Draw the bond vector for the following compounds. Which has a net dipole moment? i) CHCl_3 ii) $\text{Cl}_2\text{C}=\text{CCl}_2$ iii) CO_2

(b) Give the IUPAC names for the following compounds.



(3+3)

8. (a) Arrange the following in increasing order of boiling point. Explain.



(b) Draw the structure of borazine and compare it with the structure of benzene. **(3+3)**

9. (a) How does the conductance of alkali metal ions vary down the group?

(b) Explain the structure of B_2H_6 based on VBT. **(3+3)**

10. (a) Give the rules of resonance for writing resonance structures. Draw the resonance structures of formaldehyde.

(b) Write a short note on carbon nanotubes. **(3+3)**

PART C

Answer **any one** of the following questions.

4 X 1 = 4

11. Draw the possible structures of alkanes with molecular formula C_5H_{12} . In each structure, label the carbons as primary, secondary and tertiary.

12. Match the two columns A and B.

A	B
i) Al_4C_3	pyrosilicate
ii) $Si_2O_7^{6-}$	covalent carbide
iii) B_4C	orthosilicate
iv) Zn_2SiO_4	Natural zeolite
	Carbides of group 1,2 and 13
