

K20U 3310

Reg. No. : .....

Name : .....

I Semester B.Sc. Degree CBCSS (OBE) Reg./Sup./Imp.  
Examination, November 2020  
(2019 Admn. Onwards)  
**COMPLEMENTARY ELECTIVE COURSE IN CHEMISTRY/POLYMER  
CHEMISTRY**

**1C01CHE/PCH : Chemistry (For Physical and Biological Sciences)**

Time : 3 Hours

Total Marks : 32

**Instruction : Answer the questions in English only.**

SECTION – A

Answer **all** questions. **Each** question carries **1** mark.

1. Wave nature of electrons was verified by \_\_\_\_\_ experiments.
2. The state of hybridisation of N in  $\text{NH}_4^+$  is \_\_\_\_\_.
3. Acid rain is caused mainly due to the pollution by the oxides of \_\_\_\_\_ and \_\_\_\_\_.
4. Name the metal which causes the Minamata disease.
5. Addition of  $\text{NH}_4\text{Cl}$  to  $\text{NH}_4\text{OH}$  suppresses the dissociation of  $\text{NH}_4\text{OH}$ . This is an example for the phenomenon called \_\_\_\_\_ (5×1=5)

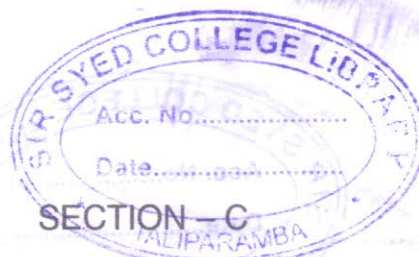
SECTION – B

Answer **any four** questions. **Each** question carries **2** marks.

6. Define ionization potential.
7. Distinguish between bonding and antibonding molecular orbital.
8. Comment on the consequences of ozone layer depletion.
9. What is meant by chemical oxygen demand ?
10. What are Arrhenius acids and bases ?
11. Explain why an aqueous solution of ammonium acetate is almost neutral. (4×2=8)

P.T.O.

K20U 3310



Answer **any three** questions. **Each** question carries **3** marks.

12. Predict argumentatively the shapes of  $\text{PCl}_5$  and  $\text{SF}_6$  on the basis of VSEPR theory.
13. Calculate the bond orders of  $\text{C}_2$  and  $\text{N}_2$  on the basis of MO theory.
14. Explain the Atomic spectrum of hydrogen.
15. What are quantum numbers ? Discuss the significance of each quantum number.
16. Explain in detail the major water pollutants. **(3×3=9)**

#### SECTION - D

Answer **any two** questions. **Each** question carries **5** marks.

17. Define electronegativity and electron gain enthalpy. Discuss their variation along a period and down a group of the periodic table.
  18. What is Born-Haber cycle ? Discuss with respect to NaCl.
  19. Describe the causes and adverse effects of (a) acid rain (b) global warming.
  20. Derive the relation between  $K_w$  and  $K_h$  for salts of
    - a) Strong acid-weak base
    - b) Weak acid-strong base.
- (2×5=10)**