

**PSG COLLEGE OF ARTS & SCIENCE**  
(AUTONOMOUS)

**BSc DEGREE EXAMINATION DECEMBER 2022**  
(Third Semester)

Branch – **BOTANY**  
**CHEMISTRY - I**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**Answer **ALL** questions**ALL** questions carry **EQUAL** marks

(5 x 1 = 5)

1. The shape of  $\text{BF}_3$  molecule is
 

(i) Trigonal planar	(ii) Tetrahedral
(iii) Trigonal bipyramidal	(iv) Linear
2. Hukel's rule is
 

(i) $(4n+2)\pi$ electrons	(ii) $4n\pi$ electrons
(iii) $6n\pi$ electrons	(iv) None of these
3. Which of the following is used as a spraying reagent in paper chromatography?
 

(i) Con. HCl	(ii) NaCl solution
(iii) Ninhydrin solution	(iv) $\text{CuSO}_4$ solution
4. The unit of rate of a first order reaction is
 

(i) mol/sec	(ii) per second
(iii) mol/ lit/ sec	(iv) mol/ sec/ lit
5. Which is the cause of acid-rain?
 

(i) Coal-burning power plants	(ii) Factories
(iii) Automobiles	(iv) All of these

**SECTION - B (15 Marks)**Answer **ALL** Questions**ALL** Questions Carry **EQUAL** Marks

(5 x 3 = 15)

6. a) Write the different types of orbitals.  
OR  
b) What are oxidizing and reducing agents? Give one example each.
7. a) State: Isoprene rule  
OR  
b) Give the preparation of nicotine.
8. a) Write a note on: i) Normality ii) Molarity (iii) more fraction  
OR  
b) Briefly discuss the superiority of TLC over the other chromatographic techniques.
9. a) How will you differentiate order and molecularity of a reactions?  
OR  
b) Describe the types of catalysis.

Cont...

10. a) Briefly explain about the global warming.  
OR  
b) Give an account on contamination of foods with toxic chemicals.

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11. a) Explain the following terms:  
i) Hund's rule      ii) Aufbau principle      iii) Pauli exclusion principle  
OR  
b) Discuss the VSPER theory.
12. a) Give the preparation, properties and uses of benzene.  
OR  
b) Mention the isolation of geraniol and camphor.
13. a) Explain:      i) Distillation under reduced pressure  
                         ii) Fractional crystallization  
OR  
b) Elaborate the principle and applications of Ion-exchange chromatography.
14. a) Derive the rate expression for first order reaction.  
OR  
b) Describe the mechanism of enzyme catalysis.
15. a) Write a brief account on types of pollution.  
OR  
b) Explain the following terms:  
a) BOD      b) COD      c) DO

Z-Z-Z

END