

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)  
BSc DEGREE EXAMINATION DECEMBER 2018  
(Third Semester)

Branch- ZOOLOGY

CHEMISTRY -1

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 2 = 20)

- 1 Differentiate between orbit and orbital.
- 2 Calculate the oxidation number of Cl in  $\text{HClO}_3$ .
- 3 What are alkaloids?
- 4 Give any two uses of terylene.
- 5 Define the term chemotherapy.
- 6 Define the term chromogen with example.
- 7 A first order reaction is 40% complete in 50 minutes. Calculate the value of rate constant.
- 8 Define negative catalyst with one example.
- 9 Name three toxic metals that can pollute the environment.
- 10 What is COD?

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Write notes on (i) Aufbau principle (ii) Hund's rule.  
OR  
b Explain the electronic concept of oxidation and reduction.
- 12 a State and explain the following (i) Huckel's rule (ii) Isoprene rule.  
OR  
b Write the preparation and uses of teflon.
- 13 a Write notes on (i) Analgesics (ii) Anesthetics.  
OR  
b How are dyes classified on the basis of their structure?
- 14 a Distinguish clearly between order and molecularity of a reaction with example.  
OR  
b Explain the characteristics of a catalytic reaction.
- 15 a What are the sources of air pollution? How can air pollution be controlled?  
OR  
b Explain the origin and impact of the following in the environment.  
(i) Cyanides (ii) Pesticides.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Discuss VSEPR theory and explain the geometry of  $\text{BF}_3$  and  $\text{PCl}_5$ .
- 17 Explain the preparation, properties and uses of the following (i) Nicotine (ii) Menthol.
- 18 a Write a note on sulpha drugs. (5)  
b How are the following dyes prepared? (i) Malachite green (ii) Alizarin. (5)
- 19 a Derive an expression for the rate constant of a first order reaction. (5)  
b What do you mean by enzyme catalysis? Mention any four characteristics of enzyme catalysis.