

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch - **BOTANY**

CHEMISTRY- I

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Among the following, identify the orbital which is closer to the nucleus a. P - orbital b. s - orbital c. d - orbital d. f - orbital	K1	CO1
	2	In terms of electron transfer ----- is called oxidation a. electron removal b. electron gain c. both a and b d. addition of Hydrogen	K2	CO1
2	3	In most naturally occurring terpenes, there is no _____ and _____ linkage a. 1-1 and 4-4 b. 4-1 and 1-1 c. 1-4 and 4-1 d. all the above	K1	CO2
	4	Starch is made up of a. Cellulose b. glucose c. fructose d. sucrose	K2	CO2
3	5	ppm is a. Parts per million b. mg/L c. both a and b d. parts per micron	K1	CO3
	6	Sublimation is the change from _____ to _____ a. Solid, liquid b. gas, liquid c. solid, gas d. liquid, gas	K2	CO3
4	7	Order of a chemical reaction can be a. Zero b. a whole number c. a fraction d. all the above	K1	CO4
	8	The rate of the first order reaction is a. Directly proportional to the concentration of the reactant b. inversely proportional to the concentration of the reactant c. independent of the concentration of the reactant d. proportional to the square of the inversely concentration of the reactant	K2	CO4
5	9	BOD is a. Biological oxygen demand b. botanical oxygen demand c. biological over demand d. boron oxygen demand	K1	CO5
	10	Among the following which one is not a green house gas a. CO ₂ b. CH ₄ c. NO ₂ d. SO ₃	K2	CO5

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the postulates of VSEPR theory.	K3	CO1
		(OR)		
	11.b.	Define oxidation number and explain how it is calculated.		
2	12.a.	State Huckel's rule. Explain it with examples.	K4	CO2
		(OR)		
	12.b.	What are alkaloids? How are they classified?		
3	13.a.	Explain fractional distillation.	K5	CO3
		(OR)		
	13.b.	Outline the principle and applications of thin layer chromatography.		
4	14.a.	List the characteristics of a catalytic reaction.	K3	CO4
		(OR)		
	14.b.	Write a note on chain reactions.		
5	15.a.	Explain the sources and effects of air pollution.	K4	CO5
		(OR)		
	15.b.	Discuss i. Acid rain ii. Eutrophication		

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Discuss the shapes of orbitals.	K5	CO1
2	17	Explain in detail the applications of cellulose and its derivatives.	K4	CO2
3	18	Outline the principles of ion-exchange chromatography. Mention its applications.	K5	CO3
4	19	Discuss the mechanism of enzyme catalysis.	K4	CO4
5	20	Illustrate the various stages of water treatment.	K4	CO5

Z-Z-Z

END