

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2026
(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	How many orbitals are present in the d-subshell? a) 3 b) 5 c) 7 d) 9	K1	CO1
	2	Which of the following acts as a strong oxidizing agent? a) Na b) O ₂ c) H ₂ d) Cl ⁻	K2	CO1
2	3	Menthol is a a) Monoterpene alcohol b) Sesquiterpene ketone c) Diterpene aldehyde d) Triterpene alcohol	K1	CO2
	4	The repeating unit of cellulose is a) α-D-glucose b) β-D-glucose c) Fructose d) Sucrose	K2	CO2
3	5	The unit of molarity is a) mol/kg b) mol/L c) g/L d) ppm	K1	CO3
	6	Which chromatography is best for separation of amino acids? a) Ion-exchange chromatography b) Paper chromatography c) Gas chromatography d) Counter-current distribution	K2	CO3
4	7	Which of the following is an example of a chain reaction? a) Photosynthesis b) Polymerization of ethene c) Neutralization reaction d) Precipitation of AgCl	K1	CO3
	8	The active centres in enzyme catalysis are made up of a) Lipids b) Vitamins c) Amino acids d) Sugars	K2	CO3
5	9	Global warming is mainly due to a) Ozone layer depletion b) Greenhouse gases c) Acid rain d) Photochemical smog	K1	CO4
	10	Biomagnification is associated mainly with a) Fertilizers b) Pesticides c) Ozone d) Sulphur dioxide	K2	CO4

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 Aufbau principle, Hund's rule, and Pauli's exclusion principle with examples.	K3	CO1
		(OR)		
	11.b.	Evaluate the method of calculating oxidation numbers with examples.		
2	12.a.	Write short notes on the occurrence, properties, and applications piperine .	K3	CO2
		(OR)		
	12.b.	Discuss briefly about cellulose derivatives and their uses.		
3	13.a.	Explain the principle and procedure of crystallization method	K4	CO3
		(OR)		
	13.b.	Give an account on Column chromatography		
4	14.a.	Derive the expression for the rate constant of a first-order reaction.	K5	CO3
		(OR)		
	14.b.	Report the mechanism of enzyme catalysis.		
5	15.a.	Brief note on the causes of Acid rain and harmful effects	K4	CO4
		(OR)		
	15.b.	Discuss the effects of soil pollution due to pesticides with example		

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	Explain the postulates of VSEPR theory and predict the shapes of PCl_5 and IF_7 molecules.	K5	CO1
2	17	Discuss the isolation, properties and uses of nicotine.	K5	CO2
3	18	Describe Thin layer chromatography and mention its applications.	K4	CO3
4	19	Enumerate reversible and chain reactions with examples.	K4	CO3
5	20	Elaborate water treatment methods in detail.	K4	CO4

Z-Z-Z END