

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2025
(Fifth Semester)

Branch - CHEMISTRY
ORGANIC 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	Which of the following is a monosaccharide? (a) Sucrose (b) maltose (c) Galactose (d) cellulose	K1	CO1
	2	Which of the following statements is false about glucose? (a) it is a reducing sugar (b) it is a disaccharide (c) it has a pyranose form (d) it is a polyalcohol	K2	CO1
2	3	The terpenoid present in peppermint oil is . (a) Citral (b) Pulegone (c) menthol (d) Camphor	K1	CO2
	4	Quinine is used as a drug for _____ (a) Typhoid (b) Tuberculosis (c) Malaria (d) Leprosy	K2	CO2
3	5	Malonic ester reacts with urea in the presence of POCl ₃ to give _____ (a) veronal (b) barbituric acid (c) luminal (d) Parabanic acid	K1	CO3
	6	Active methylene compounds react with aldehydes in the presence of piperidine to give α,β-unsaturated acids. This reaction is known as _____ (a) Perkin reaction (b) Reformatsky reaction (c) Knoevenagel reaction (d) Claisen reaction	K2	CO3
4	7	Gomberg-Bachmann reaction gives _____ (a) Aryl halide (b) Biaryl compound (c) Ketone (d) alcohol	K1	CO4
	8	Claisen condensation involves _____ (a) Aldehydes only (b) Ketones only (c) Esters with strong base (d) Acid chlorides with water	K2	CO4
5	9	The group responsible for imparting colour in dye is called _____ (a) Auxochrome (b) Chromophore (c) Resonance group (d) catalyst	K1	CO5
	10	β-carotene is a precursor of vitamin _____. (a) B (b) A (c) C (d) K	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.	Outline the following conversions (i) glucose to fructose (ii) fructose to glucose.	K2	CO1
	(OR)			
	11.b.	Explain the structural elucidation of sucrose.		
2	12.a.	Propose an experimental method to confirm cyclic structure of α -pinene.	K3	CO2
	(OR)			
	12.b.	Ascorbic acid is a reducing agent. Design a test to confirm its reducing property.		
3	13.a.	Sketch the synthesis of aceto acetic ester and diethyl malonate.	K3	CO3
	(OR)			
	13.b.	Organize the evidence for enol and keto form of aceto acetic ester.		
4	14.a.	Analyze the condensation reaction between acetaldehyde and benzaldehyde in the presence of strong base.	K4	CO4
	(OR)			
	14.b.	Examine the various methods to detect free radicals.		
5	15.a.	Examine the classification of dyes according to the mode of application.	K4	CO5
	(OR)			
	15.b.	Analyze the structure, extraction and uses of anthocyanins.		

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	Examine the structure of cellulose and its applications.	K4	CO1
2	17	Analyze the structure of piperine.	K4	CO2
3	18	Examine the preparation of following from diethylmalonate (a) adipic acid (b) barbituric acid (c) crotonic acid (d) aceto acetic acid	K4	CO3
4	19	Inspect the mechanism of Reformatsky and Perkin reaction.	K4	CO4
5	20	Analyze the synthesis of following dyes (a) Malachite green (b) Phenolphthalein (c) Alizarin	K4	CO5