

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2026
(Sixth Semester)

Branch- BOTANY

PLANT METABOLISM

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 law states that energy cannot be created or destroyed? a) Second law b) First law c) Third law d) Zeroth law	K1	CO1
	2	Enzymes are: a) Lipids b) Proteins c) Carbohydrates d) Vitamins	K2	CO1
2	3	The basic unit of light energy is: a) Atom b) Photon c) Electron d) Neutron	K1	CO2
	4	Chlorophyll mainly absorbs: a) Green light b) Red and blue light c) Yellow light d) Infrared	K2	CO2
3	5	ATP formation in light reaction occurs in: a) Stroma b) Cytoplasm c) Thylakoid d) Nucleus	K1	CO3
	6	Calvin cycle occurs in: a) Grana b) Stroma c) Cytosol d) Mitochondria	K2	CO3
4	7	Glycolysis occurs in: a) Mitochondria b) Cytoplasm c) Nucleus d) Ribosome	K1	CO4
	8	Respiratory quotient is: a) CO ₂ /O ₂ b) O ₂ /CO ₂ c) ATP/O ₂ d) CO ₂ /ATP	K2	CO4
5	9	Transamination involves transfer of: a) COOH group b) NH ₂ group c) OH group d) CH ₃ group	K1	CO5
	10	Main nitrogen source for plants: a) Ammonia b) Nitrate c) Nitrite d) All	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 laws of thermodynamics.	K1	CO1
	(OR)			
	11.b.	Describe enzyme inhibition and kinetics.		
2	12.a.	Describe photosynthetic pigments.	K2	CO2
	(OR)			
	12.b.	Explain red drop and Emerson effect.		
3	13.a.	Explain cyclic photophosphorylation.	K3	CO3
	(OR)			
	13.b.	Explain non-cyclic photophosphorylation.		
4	14.a.	Describe Krebs cycle.	K4	CO4
	(OR)			
	14.b.	Describe structure and role of ATP.		
5	15.a.	Explain nitrogen fixation.	K4	CO5
	(OR)			
	15.b.	Describe amino acid synthesis.		

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 enzyme mechanism and models.	K1	CO1
2	17	Explain photosynthesis and light absorption.	K2	CO2
3	18	Compare C3, C4 and CAM pathways.	K3	CO3
4	19	Explain respiration and glycolysis.	K4	CO4
5	20	Describe fat metabolism and beta oxidation.	K4	CO5

Z-Z-Z END