

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION MAY 2026
(Second Semester)**

Common to Branches – **MATHEMATICS & MATHEMATICS WITH COMPUTER APPLICATIONS**

PHYSICS - II

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	What is the speed of light in vacuum _____. (i) $3 \times 10^6 \text{ ms}^{-2}$ (ii) $2.865 \times 10^8 \text{ m/s}$ (iii) $2.997 \times 10^8 \text{ m/s}$ (iv) $3 \times 10^{-8} \text{ m/s}$	K1	CO1
	2	The radii of half period zones are _____. (i) Proportional to the square roots of natural numbers (ii) Inversely Proportional to the square roots of natural numbers (iii) Proportional to the natural numbers (iv) Equal to the square roots of natural numbers	K2	CO1
2	3	In the vector atom model, total angular momentum is obtained by _____. (i) Sum of orbital and linear momentum (ii) Sum of orbital and spin angular momentum (iii) Only orbital angular momentum (iv) Difference of linear and angular momentum	K1	CO2
	4	The orbital magnetic dipole moment of the electron is proportional to _____. (i) Orbital quantum number (ii) Spin angular momentum (iii) Magnetic dipole moment (iv) Orbital angular momentum	K2	CO2
3	5	In the Semi Empirical mass formula, the Coulomb term accounts for _____. (i) Strong nuclear force (ii) Weak interaction (iii) Electrostatic repulsion between protons (iv) Pairing energy	K1	CO3
	6	Which of the following is not a magical number? (i) 2 (ii) 8 (iii) 12 (iv) 50	K2	CO3
4	7	The special theory of relativity is based on _____. (i) One postulate (ii) Three postulates (iii) Four postulates (iv) Two postulates	K1	CO4
	8	The speed of light in free space is _____. (i) Variable (ii) Less than that in air (iii) Constant (iv) Unpredictable	K2	CO4
5	9	The full form of LCD is _____. (i) Liquid Crystal Display (ii) Liquid Crystalline Display (iii) Logical Crystal Display (iv) Logical Crystalline Display	K1	CO5
	10	In Boolean algebra, the bar sign indicates _____. (i) OR operation (ii) AND operation (iii) NOT operation (iv) NAND operation	K2	CO5

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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 Michelson's rotating mirror method for finding the velocity of light.	K2	CO1
		(OR)		
	11.b.	Give the theory of interference in thin films.		
2	12.a.	Illustrate the two concepts of vector atom model.	K3	CO2
		(OR)		
	12.b.	Explain the magnetic dipole moment due to orbital motion of the electron.		
3	13.a.	Describe the shell model of the nucleus.	K2	CO3
		(OR)		
	13.b.	Explain the principle of ionization chamber.		
4	14.a.	Derive Einstein's mass energy equivalence.	K4	CO4
		(OR)		
	14.b.	Explain Heisenberg's Uncertainty principle.		
5	15.a.	Explain a Zener diode and draw the V-I characteristics of a Zener diode.	K3	CO5
		(OR)		
	15.b.	Draw the circuit symbol and give the truth table of NOR gate.		

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 air wedge method for determining the thickness of a thin wire.	K2	CO1
2	17	State Pauli's Exclusion principle. Calculate the number of electrons that can occupy a given subshell.	K3	CO2
3	18	Describe the liquid drop model of the nucleus. What are its merits and demerits?	K4	CO3
4	19	State the Lorentz transformation equation and derive the equations.	K3	CO4
5	20	State and Prove De Morgan's theorems. Give the truth tables.	K5	CO5

Z-Z-Z

END