

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

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

PHYSICS - I

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Question No.	Question	K Level	CO
1	The axis about which moment of area is taken is known as ____ a) Axis of reference b) Axis of moment c) Axis of area d) Axis of rotation	K1	CO1
2	The distance in the parallel axis theorem is multiplied by: a) Area b) Volume c) Linear distance d) Area/Volume	K2	CO1
3	Stress which is responsible for elongation of wire is termed as a) Tangential stress b) Tensile stress c) Compressive stress d) parallel stress	K1	CO2
4	A beam is said to be of uniform strength, if ____ a) B.M. is same throughout the beam b) Bending stress is the same at every section along its longitudinal axis c) Deflection is the same throughout the beam d) Shear stress is the same through the beam	K2	CO2
5	When a stone is dropped in to a pond, the ripples formed on the surface of water are ____ a) longitudinal waves b) non-elastic waves c) transverse waves d) More than one of the above	K1	CO3
6	Day time noise standard prescribed for residential areas in India is a) 75 dB b) 65 dB c) 55 dB d) 50 dB	K2	CO3
7	Dispersion produced by a prism depends on a) Height of the prism b) Size of the prism c) More than one of the above d) Its refracting index	K1	CO4
8	Which of the following incident light wavefronts is most suitable for observing a single slit diffraction pattern? a) Either a cylindrical wavefront or a spherical wavefront b) Cylindrical wavefront only c) Vertical wavefront d) Plane wavefront only	K2	CO4
9	An Isotope without any Neutron is a) Protium b) Tritium c) Deuterium d) None of these	K1	CO3
10	In radioactive decay which of the following quantity depends on the number of atoms: a) Rate of decay b) Half life c) Mean life d) Rate of decay and mean life	K2	CO3

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Question No.	Question	K Level	CO
11.a.	Identify the moment of inertia and list the physical significance of moment of inertia.	K3	CO2
	(OR)		
11.b.	Build the moment of inertia of a solid sphere with the diagram.		
12.a.	Show the stress and strain and summaries Relation between Y, σ, η .	K2	CO3
	(OR)		
12.b.	Illustrate the cantilever supported at two ends and loaded in the middle.		
13.a.	Plan the velocity of transverse waves along a stretched string.	K3	CO3
	(OR)		
13.b.	Choose the noise pollution and plan the control.		
14.a.	Deduct Newton's rings are formed in a reflected light.	K5	CO4
	(OR)		
14.b.	Agree the theory of plane of transmission grating.		
15.a.	Apply Shell model and develop the theory.	K3	CO3
	(OR)		
15.b.	Show classifications and applications of artificial radioactivity.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Question No.	Question	K Level	CO
16	Explain moment of Inertia of a rectangle.	K2	CO2
17	Determine the coefficient of rigidity of a wire.	K5	CO5
18	Conclude the functions of Melde's experiment.	K4	CO4
19	Determine the wavelength by diffraction grating method.	K5	CO3
20	Apply Liquid drop model with explanation of the terms.	K3	CO3

Z-Z-Z END