B

Physics	(A)	L.K.No. 1108	Paper Code No. 6472
Paper I	(Objective Type)	Inter – A – 2021	(Group 2nd)
Time :	20 Minutes	Inter (Part I)	BWP-G2-21
Marks :	17	Session (2017 -19) to (2020 – 22)	

Note : Four possible choices A , B , C ,D to each question are given. Which choice is correct fill that circle in front of that Question No. Use Marker or Pen to fill the circles. Cutting or filling two or more circles will result in Zero Mark in that Question.

Q.No.1 (1)	In earth's Gravitational Field , work done in a closed path is : (A) Maximum (B) Positive (C) Negative (D) Zero
(2)	A two meter high tank is full of water. A hole appears at its middle , what is speed of Efflux : (A) 3.75 m/s (B) 4.91 m/s (C) 4.42 m/s (D) 5.11 m/s
(3)	A particle execute SHM of amplitude A . Potential Energy is maximum when the displacement is : (A) $\pm A$ (B) $Zero$ (C) $\pm \frac{A}{2}$ (D) $\pm \frac{A}{\sqrt{2}}$
(4)	In Young's Double Slit Experiment the Fringe Spacing is equal to : (A) $\frac{d}{\lambda L}$ (B) $\frac{L}{\lambda d}$ (C) $\frac{\lambda L}{d}$ (D) $\frac{Ld}{\lambda}$
(5)	Expression for Resolving Power of Lens is : (A) $\alpha_{min} = \frac{\lambda}{D}$ (B) $R = \frac{1}{\alpha_{min}}$ (C) $R = \frac{D}{1.22\,\lambda}$ (D) $R = \frac{\lambda}{\lambda_{2-}\lambda_1}$
(6)	Which of the following measurement is more precise : (A) 3127 s (B) 312.7 s (C) 31.27 s (D) 3.127 s
(7)	A system takes 88 seconds to complete 25 oscillations. Time period of the system is : (A) 3.52 s (B) 35.2 s (C) 3.82 s (D) 0.032 s
(8)	If r = 5 m and F = 4 N are along same direction then Torque is : (A) 5 N – m (B) 20 N – m (C) 10 N – m (D) Zero
(9)	If Vector makes angle θ with the x – axis , its x – component is : (A) A Sinθ (B) A Tanθ (C) A Cosθ (D) A Secθ
(10)	Which of the given variable is present in all three equations of Motion : (A) Acceleration (B) Distance (C) Time (D) Torque
(11)	Motion along y – axis is : (A) One Dimensional (B) Two Dimensional (C) Three Dimensional (D) Angular
(12)	One Radian is equal to : (A) $2\pi\,rev$ (B) $\frac{\pi}{4}\,rev$ (C) $\frac{\pi}{2}\,rev$ (D) $\frac{1}{2\pi}\,rev$
(13)	S.I. Unit of Angular Acceleration is : (A) rad/s^2 (B) rev/s^2 (C) $degree/s^2$ (D) m/s^2
(14)	If 20 Waves passes through medium in 1 second with speed of 20 ms^{-1}, then Wavelength is : (A) 20 m (B) 200 m (C) 400 m (D) 1 m
(15)	Velocity of Sound is maximum in : (A) Air (B) Nitrogen (C) Metal (D) Glass
(16)	The Efficiency of Heat Engine is 100 %, when temperature of Sink is : (A) 0^oC (B) 0^oF (C) 0 K (D) 273 K
(17)	Area under p – v Diagram of Carnot Engine represents : (A) Heat Input (B) Heat Output (C) Efficiency (D) Work done

ParhloPakistan.com

B

Roll No.	1108 – 20000	Session (2017 –19) to (2020 – 22)	Inter (Part – I)
Physics (Subjective)	Inter – A – 2021	Time 2 : 40 Hours Marks : 68	Group 2nd

Note : It is compulsory to attempt any (8 – 8) Parts each from Q.No. 2, Q.No.3 and attempt any (6) Parts from Q.No.4. Attempt any (3) Questions from Part – II .Write the Same Question Number and its Part Number as given in the Question Paper

BWP-92-21

Make Diagram where necessary. | Part - I | 22 x 2 = 44

Q.No.2	(i)	What are the Dimensions and Units of Gravitational Constant G in the formula $F = G\frac{m_1 m_2}{r^2}$?			
	(ii)	Is a Precise Measurement also an Accurate Measurement ? Explain your answer.			
	(iii)	Show that the equation $V_f = V_i + at$ is dimensionally correct.			
	(iv)	Is it possible to add a Vector Quantity to a Scalar Quantity ? Explain.			
	(v)	How would the two vectors of the same magnitude have to be oriented if they were to be combined to give a resultant equal to a vector of the same magnitude ?			
	(vi)	If all the components of the vectors $\vec{A_1}$ and $\vec{A_2}$ were reversed , how would this alter $\vec{A_1} \times \vec{A_2}$?			
	(vii)	State the Law of Conservation of Linear Momentum , pointing out the importance of Isolated System.			
	(viii)	Prove that for angles of Projection, which exceed or fall short of 45^0 by equal amounts the ranges are equal.			
	(ix)	What is Force due to Water Flow ?			
	(x)	Explain the difference between Laminar Flow and Turbulent Flow.			
	(xi)	Write the Dimensions of : (a) Density (b) Power	(xii)	Does a Moving Object have impulse ?	
Q.No.3	(i)	Define Power and Absolute P.E.	(ii)	Define Stationary Waves and Organ Pipe.	
	(iii)	Why does sound travel faster in Solids than in Gases?	(iv)	Prove the *relation* $v = f\lambda$ for Waves.	
	(v)	Define Work Energy Principle and write its formula.	(vi)	Define Simple Pendulum and Second Pendulum.	
	(vii)	Calculate the work done in Kilo Joules in lifting a mass of 10 Kg (at a steady velocity) through a vertical height of 10 m.			
	(viii)	Define Angular Velocity and Angular Displacement.			
	(ix)	Find the speed of Hoop on reaching at the bottom of the inclined plane when rolled down from an inclined plane of height h .			
	(x)	Explain the difference between Tangential Velocity and the Angular Velocity. If one of these is given for a wheel of known radius, how will you find the other ?			
	(xi)	Under what conditions does the addition of two simple Harmonic Motions produce a resultant , which is also Simple Harmonic ?			
	(xii)	Explain the relation between Total Energy , Potential Energy and Kinetic Energy for a body oscillating with S.H.M.			
Q.No.4	(i)	Can Visible light produce interference fringes ? Explain.			
	(ii)	Explain whether the Young's Experiment is an Experiment for studying Interference or Diffraction Effects of light?			
	(iii)	What are Newton's Rings ? Why the centre of the Newton's Rings is dark for reflected light ?			
	(iv)	Explain the difference between Magnifying Power and Resolving Power of Optical Instrument ?			
	(v)	What is the function of Collimator in Spectrometer ?			
	(vi)	Can the mechanical energy be converted completely into Heat Energy , if so give an example.			
	(vii)	What is the difference between Isothermal and Adiabatic Process ?			
	(viii)	State Ist Law of Thermodynamics . How it is applicable on human body ?			
	(ix)	Derive Boyle's Law from Kinetic Theory of Gases.			

Part - II

Q.No.5	(a)	Define Vector Product. Write down the four characteristics of Scalar Product.	(5)
	(b)	A ball is thrown horizontally from a height of 10 m with velocity of 21 m / s. How far off it hit the ground and with what velocity ?	(3)
Q.No.6	(a)	Define Absolute Potential Energy. Derive relation for Absolute P.E. of body of mass **m** on the surface of earth.	(5)
	(b)	A stationary wave is established in a string which is 120 cm long and fixed at both ends. The string vibrates in four segments at a frequency of 120 Hz. Determine its Wavelength and the fundamental frequency.	(3)
Q.No.7	(a)	What are Real and Apparent Weight ? Find the apparent weight in different cases for an object suspended by a string and spring balance in an elevator moving vertically.	(5)
	(b)	What Gauge Pressure is required in the city mains for a stream from a fire hose connected to the mains to reach a vertical height of 15.0 m ?	(3)
Q.No.8	(a)	What is Carnot Engine ? Discuss Carnot Cycle , also derive relation for its efficiency.	(5)
	(b)	A block of Mass 4 Kg is dropped from height of 0.6 m on to a spring of Spring Constant $K = 1960\ Nm^{-1}$. Find the maximum distance through which spring will be compressed ?	(3)
Q.No.9	(a)	Write down the construction of Compound Microscope and derive a relation for its Angular Magnification.	(5)
	(b)	In a Double Slit Experiment , the second order maximum occurs at $\theta = 25^0$. The Wavelength is 650 nm. Determine the Slit Separation.	(3)

PakloPakistan.com