

**Scoring Indicators**  
**Question Paper Set**  
**APPLIED PHYSICS I**

Q No	Scoring Indicators	Split score	Sub Total	Total score
<b>PART A</b>				<b>9</b>
I. 1	Luminous intensity	1	1	
I. 2	Inertia	1	1	
I. 3	Torque	1	1	
I. 4	definition	1	1	
I. 5	A falling stone	1	1	
I. 6	Conduction	1	1	
I. 7	Rigid body	1	1	
I. 8	Meaning related to elastic limit	1	1	
I. 9	$\eta$ (eta)	1	1	
<b>PART B</b>				<b>24</b>
II. 1	Derived quantities	1	3	
	Derived units	1		
	Name any derived quantity with unit	1		
II. 2	Concept	1.5	3	
	Equation for angle of banking	1.5		
II. 3	A has more specific heat	1	3	
	Explanation of specific heat	2		
II. 4	a) Non-contact	1	3	
	b) Liquid thermometer	1		
	c) Adding 273	1		
II. 5	Any two applications	1.5 each	3	

II. 6	Meaning of Potential energy with equation Any example		3	
II. 7	Two methods	1.5 each	3	
II. 8	Volume per unit time - Av Stress - N/m <sup>2</sup> Strain – No unit Surface tension – N/m Viscosity - Nsm <sup>-2</sup> 1 Atmospheric pressure - 1 x 10 <sup>5</sup> pa	½ ½ ½ ½ ½ ½	3	
II.9	Brief explanation of molecular theory	3	3	
.10	About equation of continuity Equation	2 1	3	
III	<b>PART C</b>			42
1	Mean mass = 45.6 gm Mean absolute error = 0.3 Relative error = 0.006 Percentage error = 0.6%	2 2 2 1	7	7
2	Statement and equation of conservation of momentum Explanation of Rocket propulsion Recoil of gun with equation	2 2 3	7	7
3	a) Any three physical quantities b) Derivation of relationship between the quantities	3 4	7	7
4	a) Moment of inertia of rigid body or similar explanation b) Statement of each theorem with equation	3 2 each	7	7
5	a) Meaning of errors b) Classification of errors, explanation Reason, Remedy etc	1.5 3 2.5	7	7
6	Substitution like, Initial angular velocity $\omega_1 = 0$ 300 rpm = 300 rotations in 60 s. Period = 0.2 s	2	7	7

	Final angular velocity $\omega_2 = 2\pi/T = 2 \times 3.14/0.2 = 31.4 \text{ rad/s}$ Angular acceleration = $\omega_1 - \omega_2 / T = 0 = 31.4 - 0/60$ $= 0.523 \text{ rad/s}^2$	1.5 1.5 2		
7	Substitution like $m= 100$ , power = 20 kW = 20000 W, $s= 50 \text{ m}$ etc. Force = $mg = 100 \times 9.8 = 980 \text{ N}$ Work = $F.S = 980 \times 50 = 49000 \text{ J}$ Power = work/time or time = work /power $= 49000/20000 = 2.45 \text{ s}$	1  1 1 2 2	7	7
8	Proper discussion of Conduction Convection radiation	 3 2 2	7	7
9	a) Concept of elasticity Example Explanation of Young's Modulus, equation etc.	2 1 4	7	7
10	a) Difference between streamline and turbulent flow b) Diagram: pipe of non -uniform cross section Proper explanation. equation of mass of liquid entering in each cross section $A_1 v_1 = A_2 v_2$ $Av = \text{constant}$	3  2  1 1	7	7
11	$\frac{C}{5} = \frac{F - 32}{9} = \frac{K - 273}{5}$ Or similar equation Substituting $F= 0$ and steps $C= -17.7$ $K=255.3$	2   1 2 2	7	7

12	Explanation of Beroulli's equation Any two applications	2 2.5 each	7	7
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