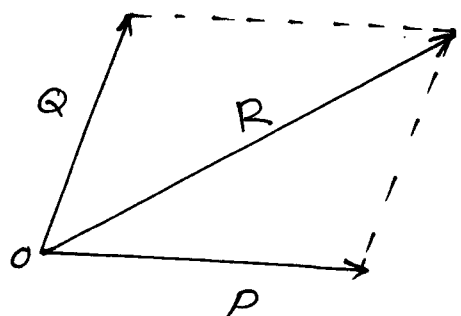


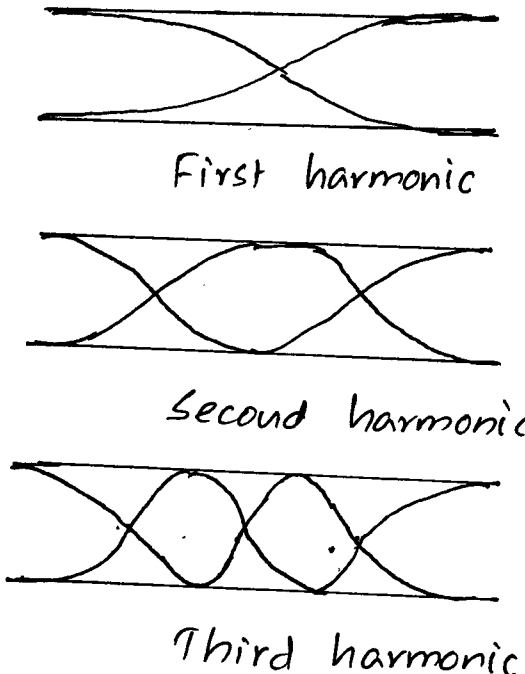
ANSWER KEYFIRST YEAR HIGHER SECONDARY EXAMINATION MARCH 20 23PART-~~II~~/IIISUBJECT: PHYSICS (H2)CODE NO: ~~FY163~~ 463VERSION: C60 SCORES2 HOURS

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
1		N	1	1
2		joule	1	1
3		vector	1	1
4		work	1	1
5		$\vec{L} = \vec{r} \times \vec{p}$	1	1
6		Pascal's law	1	1
7		radiation	1	1
8			2	2
9		Statement or $F \propto \frac{dP}{dt}$	2	2
10		Definition ($F = G \frac{m_1 m_2}{r^2}$ only 1)	2	

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Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
11		OA → Melting of ice or Phase change Bc → vapourisation or Phase change	1 1	2
12		Any two postulates	2	2
13		Definition [Equation $s = \frac{\Delta Q}{mAT}$ only (1)]	2	2
14		k → angular wave number or wave number ω → angular frequency	1 1	2
15	a)	homogeneity principle	1	3
	b)	$[mv^2] = [ML^2T^{-2}]$ $[mgh] = [ML^2T^{-2}]$ LHS = RHS	1/2 1/2	
		The equation is dimensionally correct	1	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
16	a)	Third	1	3
	b)	i) $f_s \propto N$ or $f_s = \mu_s N$ ii) f_s is independent of the area of contact iii) f_s depends only on the nature of the surfaces in contact (Any two give 2 scores)	2	
17	a)	Definition	1	
	b)	No any one example like ring, hollow cylinder, hollow sphere etc:	1	3
18.	a)	$A_1 v_1 = A_2 v_2$ or mass of fluid flowing in is equal to the mass of fluid flowing out	2	3
	b)	Magnus effect or Any related explanation	1	
19.	a)	Zero	1	3
	b)	Statement / equation of I law	2	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
20		<p>Fig or explanation</p> $\tau = -L(mg \sin \theta)$ $\tau = I\alpha$ $T = 2\pi \sqrt{\frac{L}{g}}$	<p>1</p> <p>1/2</p> <p>1/2</p> <p>1</p>	3
21		 <p>First harmonic</p> <p>Second harmonic</p> <p>Third harmonic</p>	<p>1</p> <p>1</p> <p>1</p>	3
22	a)	instantaneous	1	4
	b)	Derivation of $s = v_0t + \frac{1}{2}at^2$ from graph	3	
23	a)	True	1	4
	b)	momentum	1	
	c)	<p>Impulse = Change in momentum</p> $= mv - (-mv) = 2mv$ $= 2 \times 0.15 \times 12 = 3.6 \text{ Ns}$	<p>1</p> <p>1</p>	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
24		$\frac{MR^2}{2}$ diameter Ring Sphere	1 1 1 1	4
25	a) b)	Statement or Stress \propto strain A \rightarrow Proportional limit D \rightarrow Ultimate tensile strength E \rightarrow Fracture point OC \rightarrow Permanent set	2 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	4
26	a) b)	Parabolic / trajectory Derivations of $H = \frac{V_0^2 \sin^2 \theta}{2g}$ $T = \frac{2V_0 \sin \theta}{g}$ (Fig 1 score)	1 2 2	5
27		Statement Proof	2 3	5
28.	a) b) c)	False $\sigma = \frac{GM}{R^2}$ (1) $\sigma' = \frac{GM}{(R+h)^2}$ (1) $\sigma' = \sigma \left(1 - \frac{2h}{R}\right)$ (1) Zero	1 3 1	5
29		Statement Proof (Fig only 1), final eqn only 1	2 3	5