ANSWER KEY

SEPTEMBER

FIRST YEAR HIGHER SECONDARY EXAMINATION 2021

PART-~~I/II~~/III

SUBJECT: PHYSICS H/I

CODE NO: FY263 VERSION:

60 SCORES 2 HOURS

	Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
A	1		(b) optics	1	1
	2		(a) Nucleas model	1	1
	3		(i) True	1	1
	4		(d) Wave numbes	1	1
B	5		$[P] = ML^2T^{-3}$	2	2
	6		$ML^2T^{-2} = ML^2T^{-2}$	2	2
	7		statement	2	2
	8		Stress = Force / Area Unit Nm^{-2}	2	2
	9		Explanation	2	2
	10		Explanation	2	2
	11		Definition	2	2

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
12		Statement or $\Delta Q = \Delta U + \Delta W$	2	2
13		Any two postulates	2	2
14		Both momentum and kinetic energy are conserved	2	2
C 15		$p = mv$ Unit : $kg\,ms^{-1}$	3	3
16		Different types	3	3
17		Definition and explanation	3	3
18		Statement , $P = mgh$	3	3
19		Definition , $g = 9.8\ ms^{-2}$	3	3
20		$G = 6.67 \times 10^{-11}\ N m^2 kg^{-2}$ $[G] = M^{-1} L^3 T^{-2}$	3	3
21		Definition	3	3
22		A pendulum whose period of oscillation is 2 second $T = 2\ sc$	3	3

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
D 23		Any four quantities	4	4
24	(a)	Any two uses	3	4
	(b)	$1\ J = 10^7$ erg	1	
25		statement and proof	4	4
26	(a)	$P = \frac{W}{t}$	2	4
	(b)	1 HP = 746 W or It is the unit of power	2	
27	(a)	$\vec{\tau} = \vec{r} \times \vec{F}$	2	4
	(b)	statement or $I = I_{cm} + Ma^2$	2	
28	(a)	$I = \frac{2}{5} MR^2$	2	4
	(b)	$\vec{\tau} = \frac{d\vec{L}}{dt}$	2	
29	(a)	statement	2	4
	(b)	Explanation and working	2	
30	(a)	statement	2	4
	(b)	$P + \frac{1}{2}\rho v^2 + \rho gh = a$ constant	2	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
E 31	(a)	Definition, unit: ms^{-2} $[a] = LT^{-2}$	2	5
	(b)	Derivation of $s = ut + \frac{1}{2}at^2$	3	
32	(a)	comparison or definition	2	5
	(b)	$u = 120\ kmh^{-1}$, $V = 0$, $s = 200m$ $V^2 = u^2 + 2as$ $2as = -u^2$ $a = \frac{-u^2}{2s}$ $a = \frac{-33.33^2}{2 \times 200} = -2.78\ ms^{-2}$	3	
33	(a)	comparison with suitable example	2	5
	(b)	Derivation of $R = \frac{u^2 \sin 2\theta}{g}$	3	
34	(a)	Explanations with suitable example	2	5
	(b)	$u = 28\ ms^{-1}$, $\theta = 30^\circ$, $g = 9.8\ ms^{-2}$ $H = \frac{u^2 \sin^2\theta}{2g}$ $= \frac{28^2 \sin^2 30}{2 \times 9.8}$ $H = 10\ m$	3	

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Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
37	(a)	statement and $F = \frac{G m_1 m_2}{r^2}$	3	5
	(b)	$G = F$, when $m_1 = m_2 = 1\,kg$, $r = 1\,m$	2	
38	(a)	Different factors - shape of earth, altitude, depth etc	2	5
	(b)	Explanation $g_{(d)} = g\left[1 - \frac{d}{R}\right]$	3	