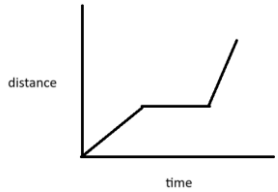
INDIAN SCHOOL AL WADI AL KABIR
CLASS XI
PHYSICS
ASSESSMENT 1 (2024 - 25)
ANSWER KEY

Q.NO.	ANSWERS	MARKS
1	b) Power	1
2	c)$[M^2L^{-2}T^{-2}]$, $[M^{1/3}\ L^{-1}]$	1
3	c)Speed of light in vacuum	1
4	c) cd	1
5	b)4 m/s	1
6	d)The body has a uniform retardation from t = 8 s to t = 12 s	1
7	d)$\tan^{-1} 2$	1
8	a)Becomes half	1
9	c)on it is zero	1
10	a)velocity	1
11	c)The elastic potential energy becomes four times greater	1
12	b)30	1
13	b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.	1
14	a) If both Assertion and Reason are true and Reason is correct explanation of Assertion.	1
15	d) If both Assertion and Reason are false	1
16	a) If both Assertion and Reason are true and Reason is correct explanation of Assertion.	1
17	$[b] = [L^3]$ $[a] = [M^{-1}L^1\ T^2]$ $[ab] = [M^{-1}L^4\ T^2]$	½ ½ 1
18	Time of flight in case (1) = case (2) $2v_1/g = 2v_2\sin\Theta/g$ $V_1 = v_2\sin\Theta$ $H_1 = v_1^2/2g$ $H_2 = (v_2\sin\Theta)^2/2g$ $H_1 : H_2 = 1:1$	 ½ ½ ½ ½
19	Statement Proof	1 1
20	a)As the friction between the tyres and road reduces on a rainy day b) To put a cycle into motion, one needs to overcome limiting friction while to maintain its motion, one needs to overcome kinetic friction. Limiting friction is greater than the kinetic friction. So it is difficult to put a cycle into motion than to maintain its motion.	1 1
21	$p \alpha \sqrt{m}$ $P_1/p_2 = \sqrt{\frac{m1}{m2}}$ $P_1 : p_2 = 1:3$ OR	½ 1 ½

	$P = W/t$ $W = KE = 1/2\ mv^2$ $P = 12250$ watt	½ 1
22	$v\ \alpha\ m^a\ r^b\ g^c$ $v = k\ m^a\ r^b\ g^c$ $[v] = [LT^{-1}]$ $[m] = [M]$ $[g]=[LT^{-2}]$ $a = 0$ $b=1/2$ $c=1/2$ $v = k\sqrt{rg}$	 ½ ½ ½ ½ ½ ½
23	$V_1^2=u^2-2gh$ $100=u^2-2gh$ $V_2^2=u^2-2gh$ $U^2=20h$ $H=10m$	1 ½ ½ 1
24	Definition Diagram Steps Final answer	1 1 ½ ½
25	Statement Diagram Proof Final answer	1 1 ½ ½
26	Statement Fα rate of change of momentum F = k rate of change of momentum $F = K\frac{dp}{dt}$ $F = K\ ma$, If K=1 F = ma OR F = ma = m(v-u)/t F = 0 v-u = 0 v=u Hence the first law of motion Definition of 1 N	1 1/2 ½ ½ ½ ½ ½ ½ ½ 1

27	$m_1u_1 + m_2u_2 = (m_1 + m_2)v$ $1.67 \times 10^{27} \times 10^{8} + 3.34 \times 10^{27}$ $= (1.67 + 3.34) \times 10^{-27} \times v$ Speed of the combination $v = \frac{1.67 \times 10^{-27} \times 10^{8}}{5.01 \times 10^{-27}}$ $= 0.333 \times 10^{8} ms^{-1}$	1 1 1

28	Statement Diagram Proof	1 ½ 1½
29	i. c)the change in momentum of the body ii. d) kgm/s^2 iii. c)C iv. a) F_1/m OR (a) 6 kg m/s	1 1 1 1
30	i. a)2240 J ii. c)Doing 200 J of work in 10 second iii. b)Power is halved iv. a)joule OR d)Milliwatt	1 1 1 1
31	a) Graph Area under the graph gives displacement Steps Final answer  b) c)unifrom acceleartion **OR** a)Graph Area under the graph gives displacement Steps Final answer b)increasing speed/acceleration	1 ½ ½ ½ ½ 1 1 1 ½ ½ ½ ½ 1 1

	uniform speed/ zero acceleration	
32	a)Graph equation for x components equation for y components final expression b) $H_P = \frac{u^2 \sin^2 30^\circ}{2g}$ $= \frac{u^2}{8g}$ $H_Q = \frac{u^2 \sin^2 60^\circ}{2g}$ $= \frac{3u^2}{8g}$ $X\left(\frac{u^2}{8g}\right) = \left(\frac{3u^2}{8g}\right)$ $X = 3$ OR a) Graph Time of flight expression Horizontal range expression b) $\frac{u_1^2 \sin^2 60^\circ}{2g} = \frac{u_2^2 \sin^2 45^\circ}{2g}$ $\frac{u_1}{u_2} = \frac{\sin 45^\circ}{\sin 60^\circ}$ $= \frac{1/\sqrt{2}}{\sqrt{3}/2} = \frac{\sqrt{2}}{\sqrt{3}}$.	1 ½ ½ 1 1 ½ ½ 1 1 1 1 ½ ½
33	a) Diagram $N\cos\Theta = W + f\sin\Theta$ $N = mg/(\cos\Theta - \mu\sin\Theta)$ $N\sin\Theta + f\cos\Theta = mv^2/R$ $v = \sqrt{\frac{Rg(\sin\theta+\mu\cos\theta)}{\cos\theta-\mu\sin\theta}}$ b) The magnitude of static friction depends on the magnitude of the applied force. As the applied force increases the magnitude of the static friction also increases. Thus static frictional force is a self-adjusting force. OR a) Diagram N=W	1 1 ½ 1 ½ 1 1 ½

	$f=mv^2/R$	1
	$v = \sqrt{\mu Rg}$	½
	b) Diagram for pushing the roller case	½
	Expression for friction	½
	Diagram for pulling the roller case	½
	Expression for friction	½