

HALF - YEARLY EXAMINATION - 2018

SUB: PHYSICS

SCORING KEY

STD: XI

PART - A

Q.No.	ANSWER	MARK ALLOTTED
1.	d) 7%	1
2.	a) Torque and work done	1
3.	a) Increases	1
4.	b) $g = 25 \text{ ms}^{-2}$	1
5.	a) 10 kg	1
6.	c) greater than 1	1
7.	c) static friction is not zero and kinetic friction is zero.	1
8.	c) $\sqrt{5gR}$	1
9.	c) $0 < e < 1$	1
10.	b) 25 rad s^{-2}	1
11.	c) decreases in the month of July and increases in the month of January	1
12.	d) 0.5	1
13.	c) $\Delta U > 0, Q > 0$	1
14.	b) 20% or c) 26.8%	1
15.	b) 10 A°	1

PART-B







PART-C

Q.No.	ANSWER	MARKS ALLOTTED	Q.No.	ANSWER	MARKS ALLOTTED
16.	Any 2 points (each 1 mark)	2	25.	i) Diagram ii) Explanation iii) $\theta = \frac{d}{D}$ $d = \theta \cdot D$	1 1 1
17.	Any 2 comparisons	1+1	26.	i) Definition ii) Formula $\vec{C} = \vec{A} \times \vec{B} = (AB \sin \theta) \hat{n}$	2 1
18.	Types of friction Methods to reduce } friction (any 2) }	1 $\frac{1}{2} + \frac{1}{2}$	27.	i) Definition ii) Examples for each type	$1 \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$
20.	(i) $W = F \cdot s$ $= mgh$ (ii) substitution iii) Answer with unit (300 J)	$\frac{1}{2}$ $\frac{1}{2}$ 1	29.	(i) $\vec{r} = \frac{m_1 \vec{r}_1 + m_2 \vec{r}_2}{m_1 + m_2}$ ii) $\vec{r} = \frac{45\hat{i} + 50\hat{j} + 65\hat{k}}{15}$ iii) $\vec{r} = \left(3\hat{i} + \frac{10}{3}\hat{j} + \frac{13}{3}\hat{k}\right)m$	1 1 1
21.	Any 2 differences	1+1	28.	Any 3 comparisons	1+1+1
22.	i) Satellite is bound to the earth (or) Gravitational force is an attractive force	2	30.	3 laws	1+1+1
23.	Correct statement (or) Stress \propto strain	2 1	31.	Any 3 differences	1+1+1
24.	i) $P \propto T^3$ ii) $PT^{-3} = k$ iii) $\frac{\gamma}{1-\gamma} = -3$ $\gamma = \frac{3}{2}$	$\frac{1}{2}$ $\frac{1}{2}$ 1	32.	i) $V \propto T$ $V \propto \frac{1}{P}$ ii) $PV = cT$ iii) where $c = Nk$ $\therefore PV = NKT$	1 1 1
			33.	$u = 40 \times \frac{5}{18} = 11.1 \text{ m s}^{-1}$ $v^2 = u^2 + 2as$ $a = -30.8 \text{ m s}^{-2}$ $u = 80 \times \frac{5}{18} = 22.2 \text{ m s}^{-1}$ $v^2 = u^2 + 2as$ $s = 8m$	$\frac{1}{2}$ 1 $\frac{1}{2}$ 1

Q.No	ANSWER	MARKS ALLOTTED	Q.No	ANSWER	MARKS ALLOTTED
34	(i) Principle of homogeneity	1		upto $T_2 = \frac{mv_2^2}{r_2} - mg$	1/2
a)	(ii) 3 uses	3		upto $T_1 - T_2 = 6mg$	1
	(iii) Any one example	1		upto $v_2 = \sqrt{gr}$	1
	(OR)			upto $v_1 = \sqrt{5gr}$	1
b)	Three laws	3		(OR)	
	(ii) Any four significance	2			
35	i) Any 5 properties of scalar	2 1/2	b)	Theorem	1
a)	ii) Any 5 properties of vector	2 1/2		Diagram	1/2
	(OR)			Explanation	1/2
				$I = \sum m(x+d)^2$	1/2
b)	i) Diagram	1		$\sum mx = 0$	1/2
	ii) Range $R = u \cos \theta \times t_f$	1/2	37	upto, $I = I_c + Md^2$	2
	$R = u \cos \theta \times \frac{2u \sin \theta}{g}$	1/2	a)	Definition	1
	upto, $R = \frac{u^2 \sin 2\theta}{g}$	1		Description	1/2
	ii) Maximum height			$E_i = \frac{1}{2} m v_i^2 - \frac{G M m}{R}$	1/2
	$v_y^2 = u_y^2 + 2a_y s$	1/2		$E_f = 0$	1/2
	upto, $2gh_{\max} = u^2 \sin^2 \theta$	1		$E_i = E_f$	1/2
	$h_{\max} = \frac{u^2 \sin^2 \theta}{2g}$	1/2		upto $v_e = \sqrt{2gR}$	2
				(OR)	
36	Diagram	1/2	b)	statement	1
a)	upto $T - mg \cos \theta = \frac{mv^2}{r}$	1/2		Diagram	1/2
	upto $T_1 = \frac{mv_1^2}{r} + mg$	1/2		Description	1/2
				upto $E_{PA} = m \frac{P_A}{\rho}$	1
				upto Expression for E_A and E_P	1
				upto $\frac{P}{\rho g} + \frac{1}{2} \frac{v^2}{g} + h = \text{const}$	1

Q. No.	ANSWER	MARKS ALLOTTED
38 9)	i) Three types of heat transfer ii) Definition of each type iii) Examples (OR)	1 3 1
b)	Description $dU = \mu C_v dT$ $Q = \mu C_p \cdot dT$ $Q = dU + W$ upto, $C_p - C_v = R$	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 $2 \frac{1}{2}$

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