

INDIAN SCHOOL MUSCAT

NAME OF THE EXAMINATION	FIRST PERIODIC TEST	CLASS: XI
DATE OF EXAMINATION	11 - 09 - 2022	SUBJECT: PHYSICS
TYPE	MARKING SCHEME	SET A

SET	Q.NO	VALUE POINTS	MARK
C	1.	(i) C (ii) A (iii) A (iv) B	4 x 1 = 4
	2.	Any two advantages of SI over other systems of units	4 x ½ = 2
	3	(a) $M^0 L^1 T^{-2}$ (b) $M^1 L^{-1} T^{-2}$ (c) $M^1 L^2 T^{-2}$ (d) $M^1 L^1 T^{-1}$ If not Derived from formula or unit deduct 1 mark	4 x ½ = 2
	4.	(i) $M^0 L^1 T^{-1}$ (ii) $M^0 L^1 T^{-2}$ (ii) (a) 1 (b) 3	½ + 1/2 ½ + 1/2
	5.	Dimensionally prove that $1J = 10^7 \text{erg}$ $n_2 = n_1 \left[\frac{M_2}{M_1} \right]^a \left[\frac{L_2}{L_1} \right]^2 \cdot \left[\frac{T_2}{T_1} \right]^{-2}$ $n_2 = n_1 \left[\frac{kg}{g} \right]^a \left[\frac{m}{cm} \right]^2 \cdot \left[\frac{s}{s} \right]^{-2} \dots\dots\dots \mathbf{1\,M}$ Rest of calculation upto final result 1 M	1 1
	6.	(i) Acceleration versus time graph (ii) Velocity versus time graph	1 1
	7.	(a) Graphical derivation of $S = ut + 1/2at^2$ Graph Derivation If in introduction the following statement is missing deduct ½ marks “A body is moving with uniform acceleration” (b) $v^2 - u^2 = 2as$ $0^2 - 35^2 = 2a(200)$ $a = -3.0625 \text{m/s}^2$ $v = u + at$ $0 = 35 - 3.06t$ $t = 11.4 \text{s}$	½ 1 1 ½
	8.	$T \propto r^a m^b G^c$ $T = kr^a m^b G^c ..$	

$$[T] = [L]^a [M]^b [M^{-1} L^3 T^{-2}]^c$$

$$[T] = [L^{a+3c} M^{b-c} T^{-2c}] \quad \dots \dots \dots \quad 1M$$

On comparing

$$b-c=0 \dots (1)$$

$$a+3c=0 \dots (II)$$

$$-2c=1 \dots (\text{III})$$

$$c = -\frac{1}{2} \quad b = -1/2 \quad \text{and } a = 3/2 \quad \dots \quad (\frac{1}{2} \text{ Marks each for } a, b \text{ & } c)$$

$$T = kr^{\frac{3}{2}}m^{\frac{-1}{2}}G^{\frac{-1}{2}}$$

$$T^2 = kr^3m^{-1}G^{-1}$$