



MT 2 [2023-24]

ANSWER KEY

Max. Marks- 20
Time:50 minutes

Q.No.	Answers	Mark
Section A		
1	C	1
2	B	1
3	B	1
4	B	1
5	C	1
Section B		
6	<p>Chemical formulas are used to describe the different types of atoms and their numbers in a compound or element. Each element's atoms are symbolised by one or two letters. A collection of chemical symbols that depicts the elements that make up a compound and their quantities.</p> <p>(a) Magnesium chloride – $MgCl_2$ (b) Calcium oxide – CaO (c) Copper nitrate – $Cu(NO_3)_2$ (d) Aluminium chloride – $AlCl_3$ (e) Calcium carbonate – $CaCO_3$</p>	2
7	<p>Force applied Object must be displaced</p>	2
8	<p>$P=w/t$ $P=1000/10=100j$</p>	
9	<p>$KE=1/2mv^2$ $25=1/2 m 5^2$</p> <p>$M=2\text{ kg}$ When $v=10\text{ m/s}$ $KE=100j$ When $v=15\text{ m/s}$ $KE=225\text{ j}$</p>	
10	<p>The molecular mass of a substance is the sum of the atomic masses of all the atoms in a molecule of the substance. It is expressed in the atomic mass unit(u).</p> <p>The molecular mass of H_2 – $2 \times$ atoms atomic mass of $H = 2 \times 1u = 2u$</p> <p>The molecular mass of O_2 – $2 \times$ atoms atomic mass of $O = 2 \times 16u = 32u$</p>	

	<p>The molecular mass of Cl_2 – 2 x atoms atomic mass of Cl = 2 x 35.5u = 71u</p> <p>The molecular mass of CO_2 – atomic mass of C + 2 x atomic mass of O = 12 + (2x16)u = 44u</p> <p>The molecular mass of CH_4 – atomic mass of C + 4 x atomic mass of H = 12 + (4 x 1)u = 16u</p> <p>The molecular mass of C_2H_6– 2 x atomic mass of C + 6 x atomic mass of H = (2 x 12) + (6 x 1)u=24+6=30u</p> <p>The molecular mass of C_2H_4– 2 x atomic mass of C + 4 x atomic mass of H = (2x 12) + (4 x 1)u=24+4=28u</p> <p>The molecular mass of NH_3– atomic mass of N + 3 x atomic mass of H = (14 +3 x 1)u= 17u</p> <p>The molecular mass of CH_3OH – atomic mass of C + 3x atomic mass of H + atomic mass of O + atomic mass of H = (12 + 3x1+16+1)u=(12+3+17)u = 32u</p>	<p>2</p> <p>3</p>
<p>11</p>	<p>$v^2 - u^2 = 2as$</p> <p>$S = \frac{v^2 - u^2}{2a}$</p> <p>We know that ,</p> <p>Work done = Force(F) × displacement (s)</p> <p>$F = ma$</p> <p>$W = ma \times \frac{v^2 - u^2}{2a}$</p> <p>["a" gets cancelled]</p> <p>$W = m \times \frac{v^2 - u^2}{2}$ $= \frac{1}{2} m[v^2 - u^2]$</p> <p>When , initial velocity , $u = 0$</p> <p>$W = \frac{1}{2}mv^2$</p> <p>K.E = Work done $= \frac{1}{2} mv^2$</p>	