

Answer paper - Part I

01	1	02	4	03	2	04	3	05	4	06	2	07	1	08	4
09	2	10	2	11	4	12	4	13	2	14	1	15	1	16	3
17	2	18	2	19	2	20	2	21	1	22	3	23	2	24	4
25	4	26	4	27	1	28	1	29	2	30	2	31	2	32	2
33	3	34	3	35	1	36	1	37	1	38	1	39	4	40	1

II කොටස

- 01 A (1) schleiden, schwann and radolf Virchow (03 m.)
 (2) The structural and functional unit of life is the cell / All organisms are made up of one or more cells / New cells are formed from pre - existing cells. (for 02 of the above) (01 m.)
 (3) for the correct steps in order / If not in order. (01 m.)
 (4) mitosis, meosis (01 m.)
 (5) for 2 correct differences (01 m.)
 B (1) Carbohydrate, Lipid (02 m.) (2) Amino acids (01 m.)
 (3) Nucleic acids (01 m.) (4) Biurette test (01 m.)
- 02 A (1) Electrons, Protons, Neutrons. (03 m.)
 (2) for the correct definition (01 m.) (3) $^{13}_6\text{C}$ (02 m.)
 B (1) 2, 8, 8, 2 (01 m.) (2) 1 (01 m.) (3) ED_2 (01 m.) (4) $\begin{array}{c} \times \times \\ \text{D} \times \text{D} \\ \times \times \end{array}$ (01 m.)
 (5) ED_2 - Ionic D_2 - Covalent (01 m.)
- 03 A (1) Acceleration $\frac{\text{Difference of velocity}}{\text{time taken}} = \frac{8 - 0 \text{ ms}^{-1}}{4 \text{ S}} = 2 \text{ ms}^{-2}$
 If answer is taken by using graph give marks. (02 m.)
 (2) Acceleration $\frac{0 - 8 \text{ ms}^{-1}}{2 \text{ S}} = 4 \text{ ms}^{-2}$
 for the answer obtained by using graph (01 m.)
 (3) uniform velocity (01 m.)
 (4) Area of graph = $\frac{4 + 10}{2} \times 8 = 56 = 56 \text{ m}$ (01 m.)
 B (1) for the correct conclusion (01 m.) (2) for the correct explanation (01 m.)
 (3) $F = ma = 400 \text{ Kg} \times 4 \text{ ms}^{-2} = 1600 \text{ N}$ (02 m.)
 (4) Momentum = Mass x Velocity
 $= 1000 \text{ Kg} \times 12 \text{ ms}^{-1} = 12000 \text{ Kgms}^{-2}$ (01 m.)
 (5) (a) perpendicular reaction, force (1/2 x 2) (01 m.)
 (b) Area of contact surface (01 m.)
- 04 (1) For the correct definition (01 m.)
 (2) relative atomic mass of Ca = $\frac{6.69 \times 10^{-23}}{\frac{1}{12} \times 1.99 \times 10^{-23}} = 40$ (03 m.)
 (3) $\text{CO}_2 = 12 + 2 \times 16 = 44$ (01 m.)
 (4) (a) $40 + 12 + 3 \times 16 = 100$ (01 m.)
 (b) CaCO_3 100g = 1mol
 No. moles in 50 g of $\text{CaCO}_3 = \frac{1}{100} \times 50 = 0.5 \text{ mol}$ (02 m.)
 04 (5) (a) No of moles = $\frac{1}{100}$ (02 m.)

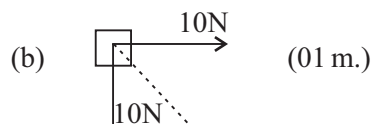
$$\begin{aligned}
 \text{(b) No. of molecules} &= \frac{90 \text{ g}}{180 \text{ g mol}^{-1}} \times \text{Avagadro constant} \\
 &= 0.5 \times 6.022 \times 10^{23} \\
 &= 3.011 \times 10^{23} \text{ (02 m.)}
 \end{aligned}$$

05 A (1) A (01 m.)

(2) A - 20N, towards East direction B - 5N to wards East direction C - 20N towards East direction (No marks if no direction) (03 m.)

(3) In a competition of pulling a rope (01 m.)

(4) (a) Two inclined forces (01 m.)



B (1) magnitude of force, Perpendicular distance from the axis of rotation to the force. (02 m.)

(2) Moment = force x perpendicular distance to the force from the axis of rotation (01 m.)

(3) A = 1000 x 4 (01 m.)

$$B = x \times 2$$

When the rod is in equilibrium

$$A = B$$

$$\begin{aligned}
 1000 \times 4 &= x \times 2 \\
 x &= \frac{1000 \times 4}{2}
 \end{aligned}$$

$$x = 2000\text{N} \text{ (01 m.)}$$

06 A (1) Archaea Bacteria Eukariya (03 m.)

(2) Eukariya (01 m.)

(3) (a) Fish (01 m.)

(b) Having a vertebrate column (01 m.)

(c) C (01 m.) (d) for 2 common characteristics of phylum Arthropoda (02 m.)

B (1) for 4 common characteristics (02 m.) (2) Homo sapeins (01 m.)