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) $^{13}_{6}C$ (02 m.)

B (1) 2, 8, 8, 2 (01 m.)   (2) 1 (01 m.)   (3) ED_2 (01 m.)   (4) $:\overset{\times\times}{\underset{\bullet\bullet}{\overset{\bullet\bullet}{D}}}\overset{\times\times}{\underset{\times\times}{D}}$ (01 m.)

(5) ED_2 - Ionic D_2 - Covalent (01 m.)

03 A (1) Acceleration $\dfrac{\text{Difference of velocity}}{\text{time taken}} = \dfrac{8 - 0\ ms^{-1}}{4\ S} = 2ms^{-2}$

If answer is taken by using graph give marks. (02 m.)

(2) Acceleration $\dfrac{0 - 8\ ms^{-1}}{2\ S} = 4ms^{-2}$

for the answer obtained by using graph (01 m.)

(3) uniform velocity (01 m.)

(4) Area of graph = (01 m.)
$\dfrac{4 + 10}{2}$ x 8 = 56 = 56m

B (1) for the correct conclusion (01 m.) (2) for the correct explanation (01 m.)

(3) $F = ma = 400Kg \times 4ms^{-2} = 1600N$ (02 m.)

(4) Momentum = Mass x Velocity
$= 1000Kg \times 12ms^{-1} = 12000Kgms^{-2}$ (01 m.)

(5) (a) perpendicular reaction, force (1/2 x 2) (01 m.)

(b) Area of contact surfrace (01 m.)

04 (1) For the correct definition (01 m.)

(2) relative atomic mass of Ca = $\dfrac{6.69 \times 10^{-23}}{\frac{1}{12} \times 1.99 \times 10^{-23}}$ = 40 (03 m.)

(3) $CO_2 = 12 + 2 \times 16 = 44$ (01 m.)

(4) (a) $40 + 12 + 3 \times 16 = 100$ (01 m.)

(b) $CaCO_3$ 100g = 1mol
No. moles in 50 g of $CaCO_3$ = $\dfrac{1}{100}$ x 50 = 0.5mol (02 m.)

04 (5) (a) No of moles = $= 0.5mol$ (02 m.)

(b) No. of molecules $\dfrac{90 \text{ g}}{180 \text{ gmol}^{-1}}$ no. of moles x Avagardro constant

$=\quad 0.5 \times 6.022 \times 10^{-23}$

$=\quad 3.011 \times 10^{-23}$ (02 m.)

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 it no direction) (03 m.)

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

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

10N

10N
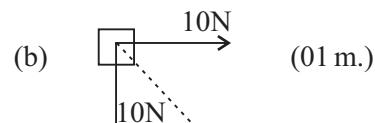
B   (1) magnitude of force, Perpendicular distance form the axis of rotation to the force. (02 m.)

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

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

B   = x x 2

When the rod is in equilibrium   A   =   B

1000 x 4   x x 2

$x\quad=\quad \dfrac{1000 \times 4}{2}$

$x\quad=\quad 2000N$ (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.)