Matugama Education Zone

Second Term Evaluation - 2023

Grade 10	Subjects - Science	Paper II	Time – 03 Hour

Name ....

Part A

(01). A. Grade 10 Students had gone a field visit to coastal area and they had observed some different organisms in that environment which are shown in the below.

Below table shows, Phylum / Group and some features of those organisms. Fill in the blanks of that table.

(i).

Feature	Group / Phylum
A. Possess a lateral line System.	………………………….
B. A highly distributed water vascular system present in the body.	………………………….
C. ………………………………………………………………	Mollusca
D. There is a chitinous cuticle on the body.	………………………….
E. Nematocyst / Cnidocyst present.	………………………….

(ii). Write one difference of the nucleus in the cell in both bacteria and Algae.

……

(iii). State the one feature of natural classification system.

……

(iv). Write the chemical formula of the sodium chloride which is the most abundant component in the sea water. ………………………………………………………………………………………………………

(v). Name the type of the bond that present in the sodium chloride molecule.

……

(vi). Calculate the relative molecular mass of sodium chloride.

(Molar mass of Na-23 $gmol^{-1}$, Cl - 35.5 $gmol^{-}$

……

(vii). A human is swimming in the sea. Write the Newton's Law regarding this incident.

……

(viii). A 100kg boat moves with velocity of 30 ms^{-1}. Calculate the momentum of the boat.

……

(02). A. Food sample was placed in a watch glass and heated. When a glass sheet placed above the watch glass, a liquid drops could be observed.

(i). If student said that, those were water drops, write a chemical compound that can be used to confirm they as water

……..……..……..……..……

(ii). What is the procedure that used to find the presence of carbon as constituent in the above food sample?

……..……..……..……..……

(iii). Write two bio - molecules that contain only C, H and O

(a) ……..…… (b) ……..……

(iv). Write the essential element, that causes the below deficiency symptoms in plants.

(a) Die of the tip of the leaves. ……..……

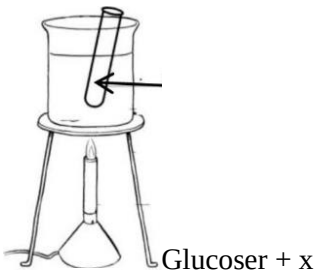
(b) Chorosis in the mature plant leaves. ……..……

(v). Write the essential, Vitamin, that cause the below vitamin deficiencies in human body.

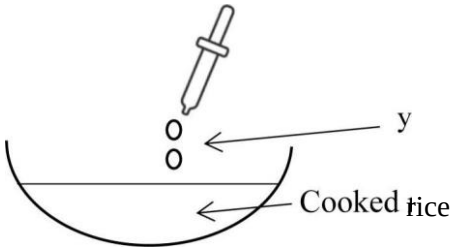
(a) Brickle bones ……..……

(b) Delay in blood clotting ……..……

B. Below diagram shows a test used to identify some constituents in the food sample.



a



b

(i). If brick red colored precipitate observed in the above (a) what is the solution x?

……..……..……..……

(ii). If purplish blue color observed in the above (b), what is the solution 'y'?

……..……..……..……

(iii). What is the constituents that can be identified in the above 'a' test?

……..……..……..……

(iv). If we use consumable sugar instead of glucose in the above 'a' test, what is the step that should be followed to get above (i) observation?

……..……..……..……

(v). The compound in the above (iv) act on the sugar to get the observations. What is the type of the protein that secreted by human digestive system, that doing above same thing?

……..……..……..……

(vi). Write the intermediate product of digestion of the component that was identified by Y solution in above test.

……..……..……..……

(03). A. A, B, C, D, E, F, G, H and I are nine consecutive elements in the periodic table. H is a noble gas belonging to period 02 (The above mentioned symbols are not true symbols of the respective elements. Answer the questions below that are based on them) Fill in the blanks with suitable answer

(i). Atomic number of D :- ……

(ii). Elements belong to same Group :- ……

(iii). Chemical formula between I and G :- ……

(iv). Group number of B :- ……

(v). Type of the bond in the chemical compound that is formed by D and F :-

……

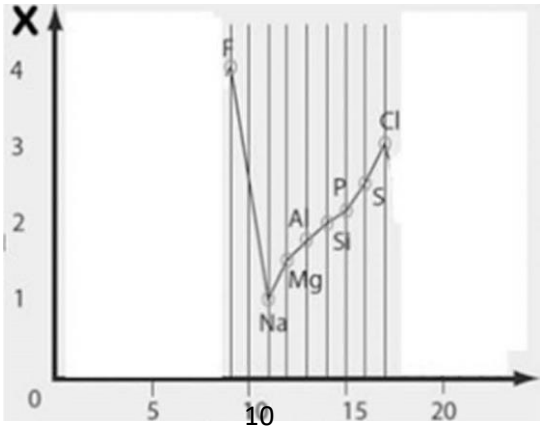
(vi). Gaseous element that is used to fill the tyres in vehicles :-

……

(vii). Type of the bond in the chemical compound that is formed by A and F :-

……

B. Below Graph shows some periodic pattern in the periodic table. Some of the elements are shown here.



Atomic Number

(i). What is the property that mention in above graph as 'X'?

……

(ii). What is the scale that the above property expressed?

……

(iii). Mark the position of K in the graph.

……

(iv). What is the element that belongs to group 2 of periodic table which was not mentioned in the above graph?

……

(v). What is the element that form the amphoteric oxide among above all elements?

……

(vi). Write another property that can be seen in the periodic table except above property.

……

(04). A. Stone projected with 5 ms^{-1} velocity to vertically upward and it reached it's maximum height within 4 seconds.

(i). What is the velocity of the stone at it's maximum height?

……..……..……..……

(ii). Draw the velocity time graph for the above motion of the stone.

(iii). What is the scaler and vector quantity, that represented in the above graph?

(a) scaler quantity ….…… (b) Vector quantity ….……

(iv). Calculate the maximum height, travelled by the stone.

……..……..……..……

(v). The mass of stone is 50g, what is the weight of the stone?

……..……..……..……

B. Friction facilitate as well as interfere on the motion of the object.

(i). Name two factors that affect on the friction.

(a). ….…… (b) ….……

(ii). What is the mechanism that can be used to remove the water in between tire and wet road?

……..……..……..……

(iii). Mark the all the forces acting on the below wooden block.

(iv). What is consider as the center of gravity of the object?

……..……..……..……

Part B

- Answer 3 Selected questions only.

(05). A. Cell theory explains, structural and functional unit of the living organisms is cell and all the organisms are made out of one cell or more than one cells.

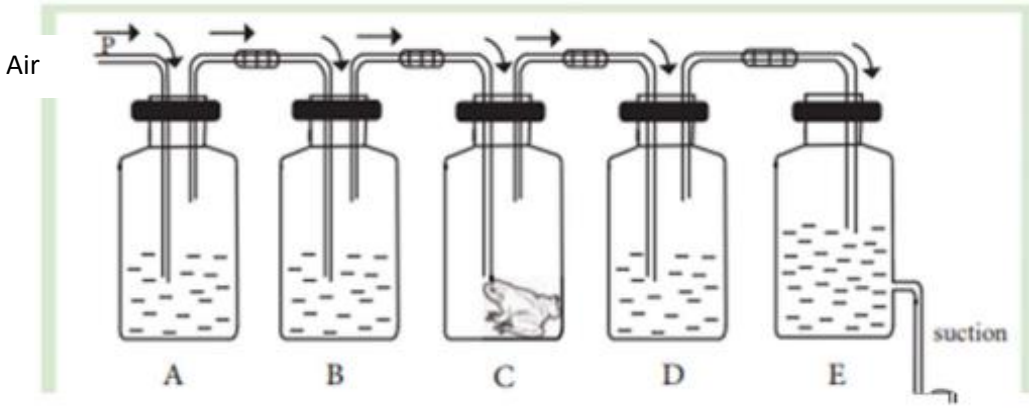
(i). State the scientists that introduced the cell theory.

(ii). Write the procedure in 3 steps for the preparation of specimen of plant cell to observe under the microscope.

(iii). Write two differences of plant and animal cell.

(iv). Name the organelle that referred as "power house" of the cell and state the function of it.

B. The process of production of energy using stored foods in the living cell is known as a cellular respiration. Below apparatus is prepared to show the CO_2 release during the respiration.



(i). Name the solutions in A, B, D and E bottles.

(ii). What is the initial step of above activity?

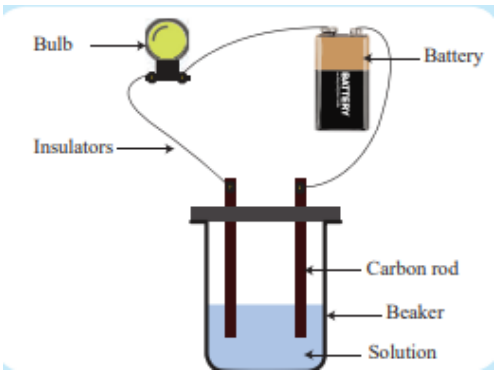
(iii). Write the changes in colour of the solutions B and D.

C. (i). What is the main organ that nitrogenous excretion of human take place?

(ii). Write 3 characteristics which are only possess by the viruses.

(iii). Name the disease that caused by viruses?

(06). Chemical bonds are formed in between atoms or ions during the rearrangement of electrons in the valence shell for stabilizing the atoms of the elements. Below apparatus used to identify the type of the bond that in the chemical compound.



(i). Write the solution that can be used as X to light up the bulb.

(ii). What is the type of the bond that present in above (i) mentioned chemical compound?

(iii). Students said that, bulb was not going to light up when use distilled water as X solution. Give reason for it using nature of the bonds.

(iv). Draw the Lewis structure of H_2O molecule.

(v). Carbon electrodes remove from above solution and attach to two sides of NaCl crystal and observe the lighting of the bulb

(a) Is bulb going to lighting or not?

(b) Give reason for above answer.

(vi). Write two allotropes of carbon.

(vii). Which one carry the highest boiling and melting temperate of above allotropes.

B. Write the chemical formula as below compound.

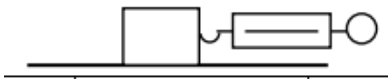
(i). Magnesium chloride

(ii). Aluminum Oxide

(iii). Calcium Hydroxide

(iv). Sodium Carbonate

(07). A. Wooden block place on a vertical table and apply the force in three times using a Newton balance.



Incident	Applied force	Movement of
1	5 N	No movement
2	7 N	Wooden block starts to move
3	P	Moving at a uniform velocity

(i). Write the type of frictional forces separately that act on the wooden block in the above 1, 2 and 3 incidents.

(ii). Mention the applied force is equal to 7N, Higher than 7N (F <7) or lower than 7N (F>7)for below situations.

(a). Applied force at 3 incident.

(b). When apply the force after adding sand paper in the contact surface of wooden block.

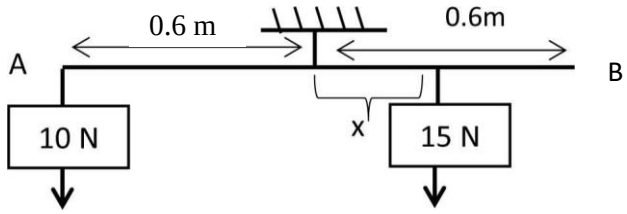
(c). The surface with lower surface area of wooden block contact with the table.

(d). When another same size wooden block put on the top of the wooden block which contact with table.

(iii). Of the above situations, what are the situation that unbalance force act on the wooden block.

(iv). What is the law that can be explained the acting of unbalanced force on the object?

B. A uniform rod AB is 1.2 m long. It was balanced after being suspended from the center and then a weight of 1O N attach at A end.



(i). In order to bring the rod back into equilibrium, how far from the balance point on the other side of the rod should a weight of 15N be held.

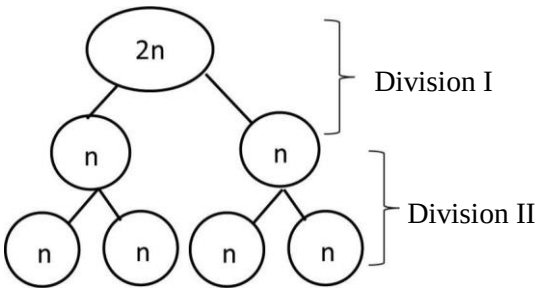
(ii). What is mass of 1O N weight?

(iii). After being balanced the rod by suspending two weights, what is the tension of the string of the rod?

(iv). State two incidents where couple of forces applied.

(v). State two incidents where moment of force is applied.

(08). A. Cells in the living body divide in two ways. One of the cell division displayed below.



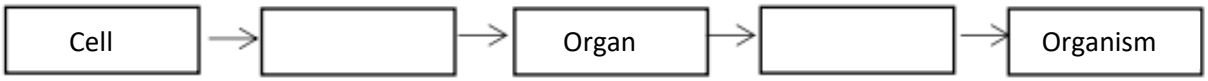
(i). Mention the type of cell division that show in the above diagram.

(ii). Name I and Il cell divisions that mention in the above diagram.

(iii). Give example for above cell division type that occur in the living body.

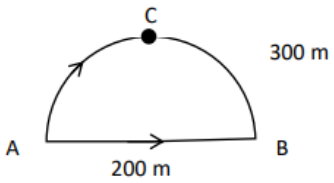
(iv). State two importance of above cell division.

(v). Complete the below living body organizational level chart.



(vi). Write two common features for living beings.

B. Below diagram shows half circular pathway.



Person X start from A position and travel towards the B passing C. Person Y moves from A to C in a straight line. If time taken by the X is 60s for the travelling,

(i). Find the mean speed of X

(ii). Find the displacement of Y

(iii). Y travels with uniform velocity which is equal to the mean speed of the X, What is the time taken by the Y to travel A to C.

(iv). The life mass of Y is 60kg, calculate the momentum of Y

(v). Name two vector quantities.

(09). A. Most of the element exists in the nature as molecules by combining of two or more atoms of the elements. Compounds are composed of different atoms of the elements.

(i). Write is meant by the covalent bond?

(ii). Write two differences in the features of Ionic and covalent compounds.

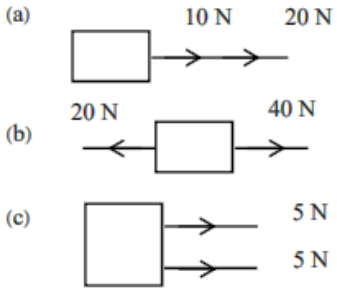
(iii). Group below compounds as ionic and covelent

(1) Nacl (2) H_20

(iv). Calculate the amount of H_2O in 9g of H_2O (molar mass of H-1, 0 - 16)

(v). Find the number of H_2O molecules in 9g of H_2O.

B.(i). Find the Resultant force in each of following situations.



(ii). Mark all the forces that act on the each of following objects.

(a) Wooden block placd on the floor (b) Bulb (c) A swing