Minuwangoda Education Zone

Second Term Test - 2025

Grade 10

Science

Name : …….. Time - 3 hours

Part – *II*

* **Answer all questions in part A in the space given.**
* **Answer 3 questions in part B.**

Part - A

1) (*A*) Some laboratory equipment's are shown below.

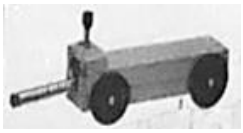

a


b


c


d


e


f

(i) Identify above equipments and name them (03)

a …… b …….. c ……

d …… e …….. f ……

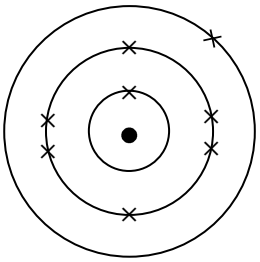
(ii) Select two equipments used to test whether carbon present in bio molecules and write the relevant letter. (02)

a …… b …….

(iii) Complete the following table related to identification of bio molecules. (03)

Type of bio molecules	chemical used to identify	colour of the chemical used	colour if the presence of bio molecule
Starch	a …….	b …….	c …….
Protein	d ……. Sodium hydroxide	e ……. colourless	f …….
g ……	Sudan III	h …….	i …….

(*B*) The structure of a certain atom is given below.



(i) What is the atomic number of above atom. (01)

……

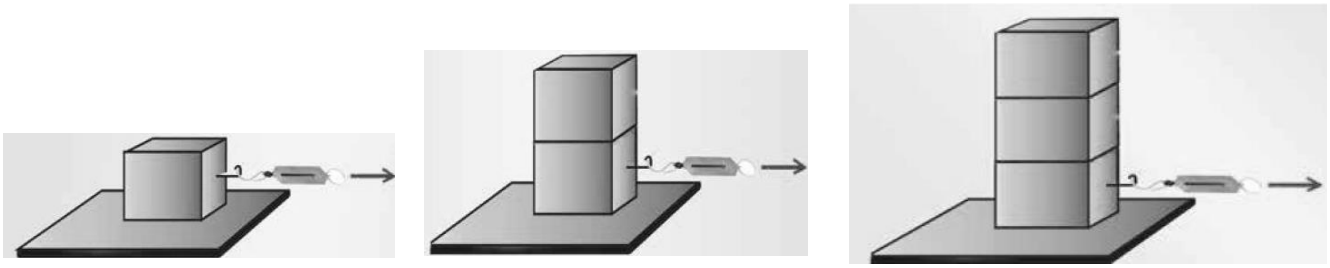
(ii) What is the valency of above element (01)

……

(iii) Identify the above atom and write the chemical equation for the form of its ion. (02)

……

(*C*) An activity done by a group of students to identify the factors affect for friction is given below.



(i) What is the factor affecting for friction is tested by above activity? (01)

……

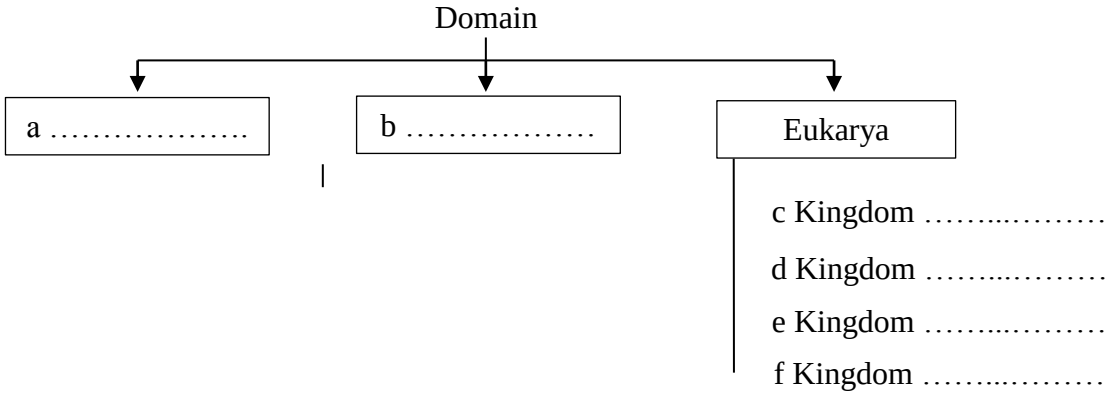
(ii) What is the factor should be kept constant in this activity. (01)

……

(iii) ,What is the frictional force acting on the block of wood when it begins to move. (01)

……

2) A diagram related to classification of organisms is given below.



(i) Complete the blanks a to f in above diagram (01)

(ii) What is the meant by nutrition? (02)

……

……

(iii) Autotropism can be divided in to two categories according to the type of energy they use for food production. Name these two categories. (02)

a …… b …….

(iv) How do saprophytes fulfill their nutrition requirement (01)

……

(v) To which kingdom that the saprophytes belong? (01)

……

(vi) Write 2 differences between plant and animal cell (02)

	Plant cell	Animal cell
a	……	……
b	……	……

(vii) Write another function of cell organelle that control biological activities in the cell. (01)

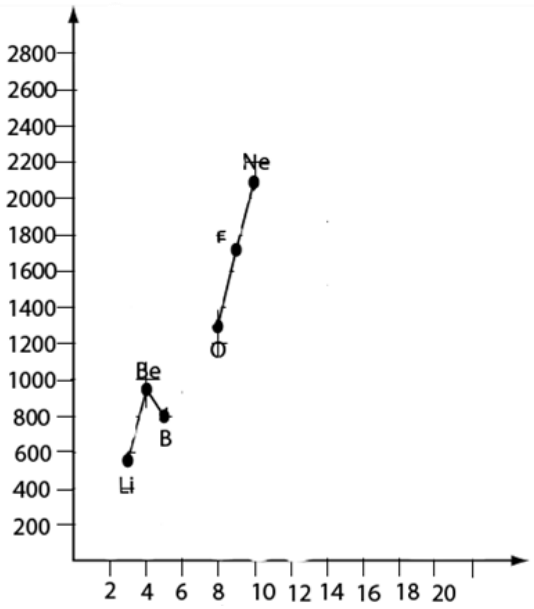
……

(viii) Write the animal class possessing following features in the table. (02)

Feature	Animal class
a. Has red blood cells lacking a nucleus	a ……
b. There are two forms as medusa and polyps	b ……
c. Body shows penta radial symmetry	c ……
d. Possess jointed limbs.	d ……

(ix) What is meant by irritability? (01)

3) An incomplete graph of the variation of first ionization energy of the elements belong to second period of the periodic table is given below.



(i) What is meant by first ionization energy? (02)

……

……

(ii) Write the symbol of unit measuring the first ionization energy. (01)

……

(iii) Complete the graph between the elements Boron and Oxygen and Write the elements there with symbols (03)

(iv) What is the common structural feature of all above elements (01)

……

(v) Which of the above element has properties in between the metals and non metals. (01)

……

(vi) How many electrons and protons are there in Li^+ (01)

a - electrons …….. b- protons ……..

(vii) Which of the above elements forms the strongly basic oxide? (01)

……

(viii) What is the type of bond in the compound formed between element F and H. (01)

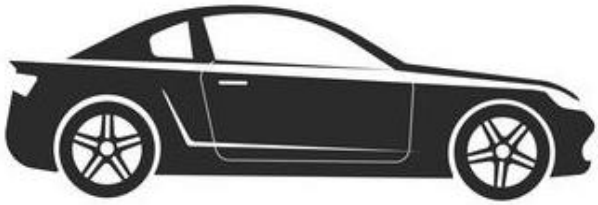
……

(ix) Illustrate the above bond by a dots and cross diagram (02)

(x) Write the symbols of cation an anion with electrons similar to Neon atom. (02)

cation …….. Anion ……

4) A vehicle with the mass of 100kg is on the road as in the figure given.



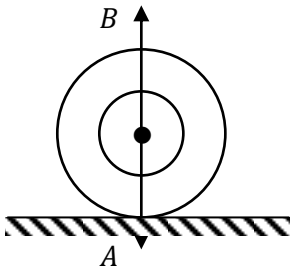
(i) What is the force exerted on the ground by the vehicle. (g= $10ms^{-2}$) (01)

……

(ii) By which Newton;s law explains the reason for remaining the vehicle at rest? (01)

……

(iii) The forces exerted on the wheel of vehicle is shown by the wheel is named as A. What is force B? …… (01)



(iv) Write the relationship between force A and B. (02)

(a) Relationship between the magnitude of two forces.

……

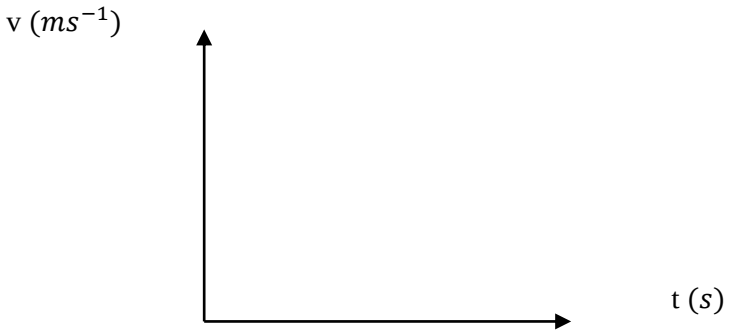
(b) Relationship between the direction of two forces.

……

(v) A force of 1200N needs to push the vehicle forward direction. If a person applied 400N force on the vehicle to forward direction, what is the extra force needed to apply to push the vehicle?

force …….. direction ……. (02)

(vi) After starting the motion, the vehicle moves 20s with a uniform velocity of $30ms^{-1}$. Then within next 5s it uniformly decelerates and comes to the rest due to the applying brakes. Drawn the velocity time graph for the motion of the vehicle (02)



(vii) What is the total displacement of the vehicle? (02)

……

……

(viii) What us the momentum of the vehicle when it is moving with the uniform velocity. (02)

……

……

(ix) If 30N force perpendicular to the door is applied 75cm away from the hinge to open the door calculate the moment of force. (02)

……

……

Part B

5) (*A*) All organism are made up of cells. Cells have ability to growth and divide.

(i) What is meant by cell growth? (02)

(ii) Name 2 methods of cell division (01)

(iii) How does the increase in the complexity of the cell is named as? (01)

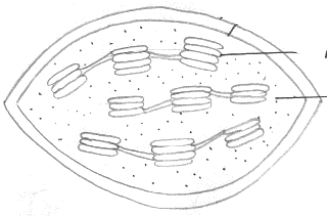
(iv) Write the type of cell division takes place in following instances. (03)

$a-$ Growth of phloem tissue

$b-$ Formation of pollen from gamete mother cell

$c-$ Multification of cancer cells

(v) Name the following cell organelles and write the function of each organelle. (03)



A

B

C

(vi) What is the energy source that provides energy for the main function takes place in organelle. A (01)

(vii) As which type of energy does the above energy is stored. (01)

(viii) Illustrate the above process by a chemical reaction. (02)

(*B*) The structure that bears sexual parts of a plant is the flower.

(i) Draw a labell diagram of the androecium. (02)

(ii) Write the changes take place in the following parts of the flower after fertilization. (02)

$a-$ ovule

$b-$ wall of ovary

(iii) What is meant by seed dormaney? (02)

6) (*A*) Few chemical symbols are shown in following diagram.

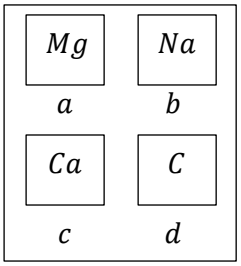


diagram *I*

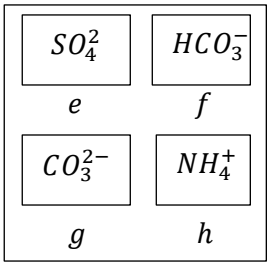


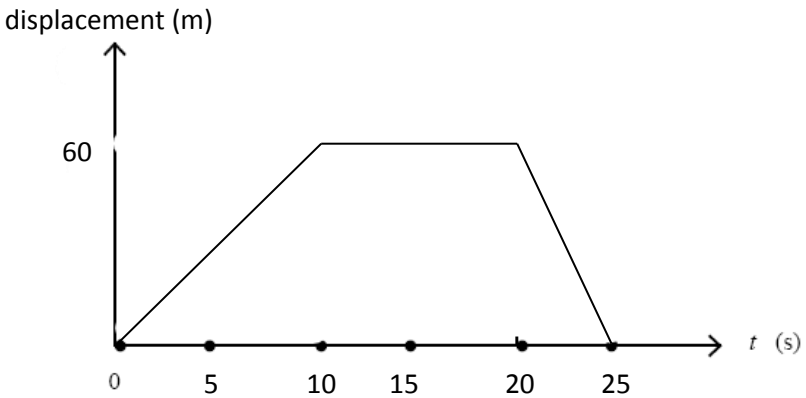
diagram *II*

(i) Elements are mentioned in diagram I. What are mentioned in diagram II? (01)
(ii) Write the relevant letter of symbols in above diagram with the valance of 2. (02)
(iii) Write an observation when the element denoted by (a) is burnt. (01)
(iv) How does the element in grid b is stored? Give reason for that. (02)
(v) What is the element commonly used in nano technology? (01)
(vi) Write the element in diagram I and structure in diagram II which are combined in the form of calcium carbonate. (02)
(vii) Write the chemical formula of calcium carbonate (01)
(viii) Write two crystalline forms of element d (01)
(ix) Write the real chemical formula of the compound formed by the reaction between b and e. (02)
(x) Write an alloy made with element in a. (01)

(*B*) An ammonia molecule is formed by the combination of one nitrogen atom and three hydrogen atoms.

(i) Draw the Lewis structure of ammonia molecule (02)
(ii) What is the bond type present in ammonia molecule (01)
(iii) How many lone pairs in above molecule (01)
(iv) How many bonded pairs of electrons in above molecule (01)

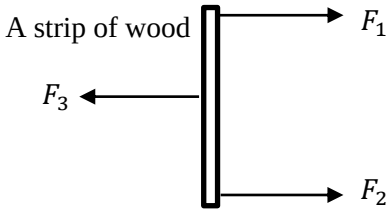
7) (*A*) The displacement time graph for the motion of an object moving along a straight path is given below.



(i) Write the nature of the motion of the object with in first 10s. (01)
(ii) Explain the motion of the object from 10s - 20s (01)
(iii) What is the time duration that the object has highest rate of changing displacement (01)
(iv) What is the total displacement of the object (01)
(v) Draw the velocity time graph for the above motion. (03)

(B) A ball falls from a window in a multistoried building takes 5s to reach the ground. $(g = 10ms^{-2})$
(i) Prepare a velocity time data table for the above motion. (02)
(ii) Sketch a velocity time graph according to the above table. (03)
(iii) What is the height to the window from the ground? (02)

(C) An activity related to resultant force is shown below.



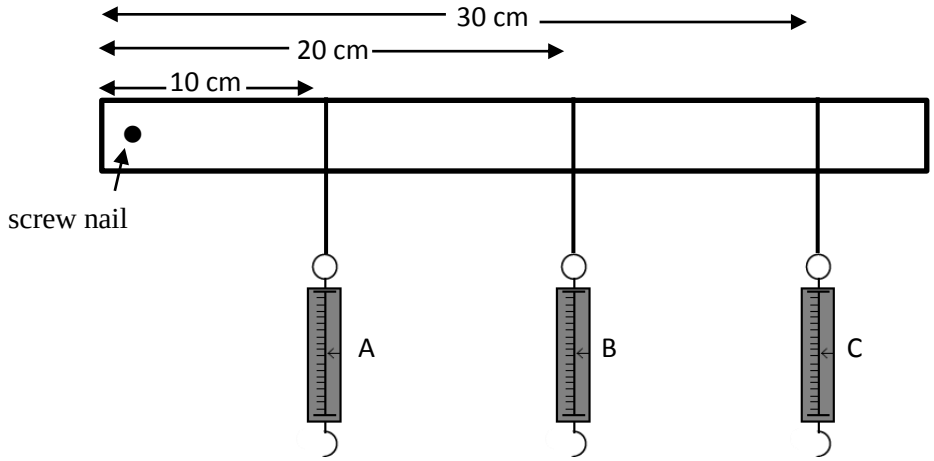
(i) What is meant by resultant force? (01)
(ii) Write the relationship among force F_1 , F_2 and F_3 (02)
(iii) If $F_1 > F_2$ what will happen to the strip of wood? (01)
(iv) What are the conditions must be satisfied to remain object in equilibrium as above. (02)

8) (A) Some consecutive element in the periodic table are mentioned in the following table. The symbols given are not true symbols. Answer the questions using the true symbols of the respective elements.

Symbol	A	B	C	D	E	F	G	H	I	J	K	L
electronic configuration	2,1	2,2	2,3	2,4	2,5	2,6	2,7	2,8	2,8,1	2,8,2	2,8,3	2,8,4

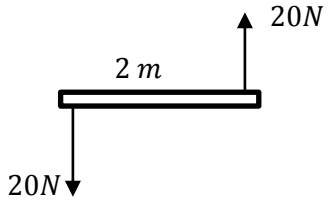
(i) Name the noble gas. (01)
(ii) What is the element belongs to III group in 3rd period. (01)
(iii) What is the type of bond formed in the combination of G and I. (01)
(iv) What is meant by the electronegativity of and element (01)
(v) Arrange the elements A, B, I, G according to the ascending order of their electronegativity (02)
(vi) Sketch a diagram of an activity done to identify the type of bond in an aqueous solution of a compound. (03)

(*B*) An activity done to identify the factors affect for the moment is shown in the following figure.



(i) What us the factor affect for the moment is tested by above activity? (01)
(ii) If the readings of the Newton balances are 6N, 4N, 3N. Write that readings of respective to each A, B, C balance (03)
(iii) Is above moment is clock wise or anti clock wise? (01)
(iv) What is the moment of balance B? (02)

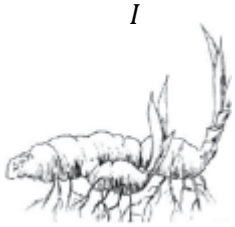
(*C*) A special instance of moment of force is given below.

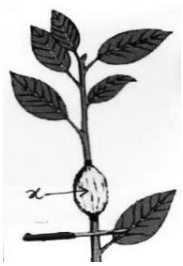


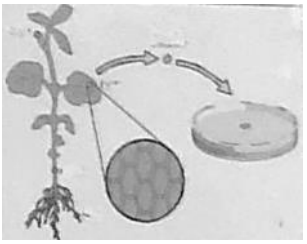
(i) How does the above type of force application is known as (01)
(ii) Write 2 characteristics of above 2 forces (01)
(iii) Calculate the moment of forces in above diagram (02)

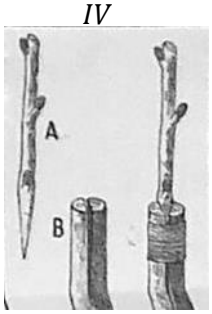
9) (*A*) Some plant propagative methods are shown below.

I *II* *III* *IV*





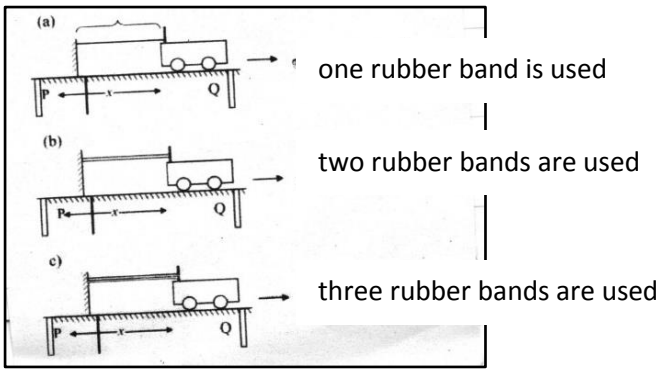




(i) What are the natural vegetative propagation methods mentioned above. (01)
(ii) Name a and b in diagram (iv) (01)
(iii) Write 2 characteristics should be shown by part A in diagram (iv) (02)

(iv) Write 2 advantages of vegetative propagation method mentioned diagram (iii) (02)
(v) Write a step to be taken to keep the moisture in placed x in the propagation method mentioned in diagram (ii) (01)
(vi) If a branch closer to the ground level is used to propagation method mentioned in diagram (ii) sketch a diagram to illustrate how it is done (02)

(B) An activity done to demonstrate the Newton's second law of motion is shown below.



In here pull the rubber band x distance and release the trolley. Activity is repeated 3 times by increasing the number of rubber bands.

(i) Does the trolley move to the direction p or q. (01)
(ii) Arrange the 3 instances according to the descending order of the velocity of the trolley (02)
(iii) What is the function done by changing the number of rubber bands? (02)
(iv) What would happen if a certain mass is kept on the trolley in instance c? (01)
(v) What is the conclusion arrived by keeping a mass on the trolley in instance c (02)
(vi) Express the Newton's second law using an equation (01)
(vii) If an acceleration of $3ms^{-2}$ results when a force of 250N is applies on a certain object. What is the mass of the object. (02)