Minuwangoda Education Zone

Second Term Test - 2025

Grade 11

Science

Name : …….. Time - 3 hours

Part – *A*

* **Answer all the questions within the given spaces.**

1) (A) Listed below are some of the organelles found in a cell.

Nucleus, chloroplast, Ribosome, Golgi complex, Mitochondrion

(i) Which of the above organelles is found only in plant cells? (01)

……..

(ii) In which organ all does each of the following processes occur? (02)

(a) Synthesis of protein

……..

(b) Production and packaging of secretory materials

……..

(iii) It is an element needs for the synthesize of chlorophyll. The deficiency symptoms of this element are forming dead cells and tissues throughout the plant. There are extra thickness in leaves. What is this element? (01)

……..

(iv) How many chromosomes are there in a human cell? (01)

……..

(B) Below are some of the most common substances found in everyday life.

(Salt, Vinegar, Soap, milk of magnesia, Lime juice, Jeevani)

(i) Classify the above substances as acids, bases and salts. (03)

Acids	Base	Salts
……	……	……..
……	……	……..

(ii) Define the term strong acids. (01)

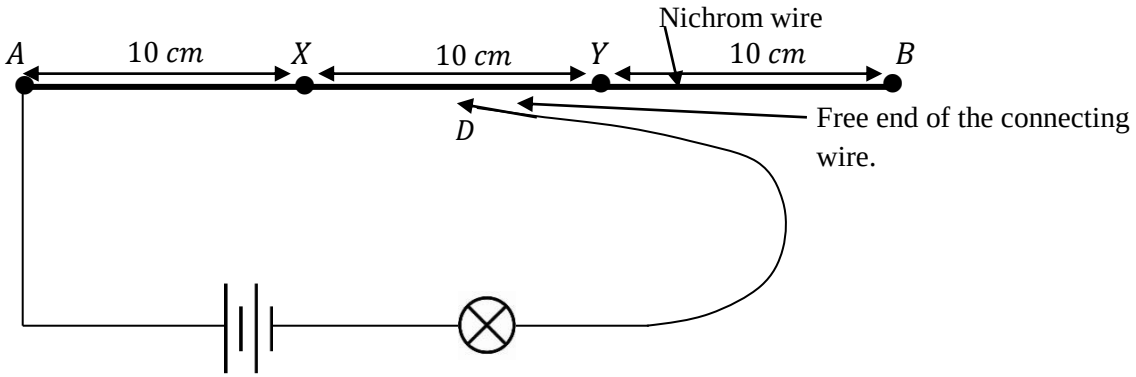
……..

(iii) Write 2 common features of acids. (01)

……..

……..

(C) Below is a diagram of an activity planned by a student.



(i) How does the brightness of the bulb change when the D end of the connecting wire is touched at points A, X, Y and B? (01)

……..

(ii) Give a reason for the above answer. (02)

……..

(iii) The wire AB was cut into 3 pieces with 10cm and connected in parallel to the circuit.

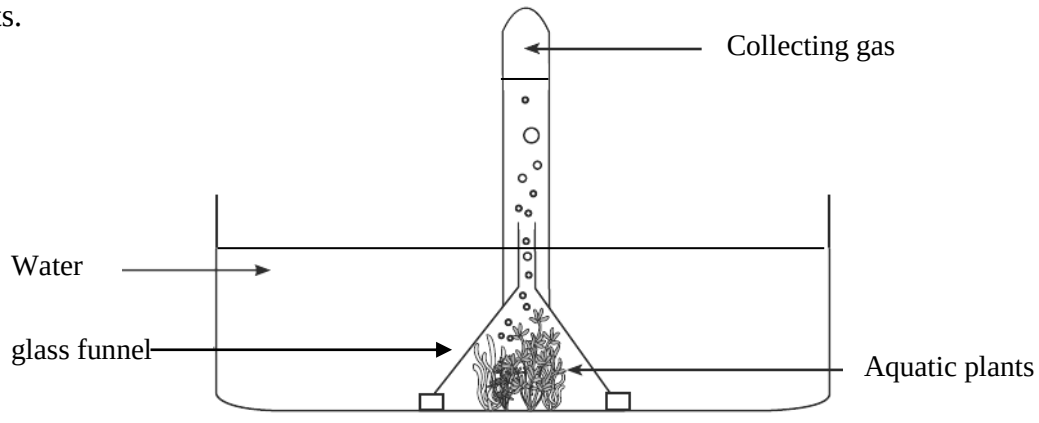
(a) What happens to the brightness of the bulb? (01)

……..

(b) Give a reason for your answer. (01)

……..

2) (A) The following is an activity to identify the gas released as a by product of a certain process in green plants.



(i) Name the above process which occurred in green plants. (01)

……..

(ii) Name 2 external factors, which need for the above process. (02)

……..

(iii) Name the gas released as a byproduct (01)

……..

(iv) How to identify that gas? (01)

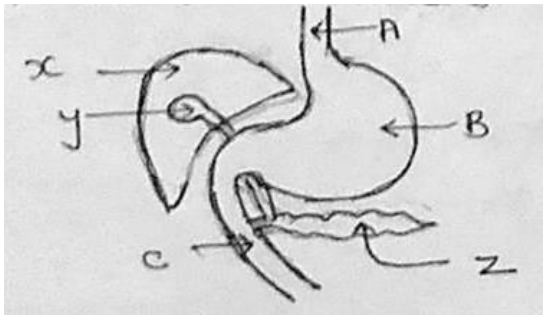
……..

……..

(v) Write the balanced chemical equation for the process shown by the setup (02)

……..

(B) The diagram shows a part related to the human digestive system.



(i) Name A, B, C, x, y and z (03)

A …… x ……..

B …… y ……..

C …… z ……..

(ii) The secretions released from the "Y" help in the digestion of Lipids. Name that secretion and the organ that produces it. (02)

……..

(iii) Write two enzymes that are produced in the stomach (01)

……..

(iv) Gastritis is a disease related to the digestive system. Write two reasons for this disease. (02)

……..

……..

3) The position of various elements in a table prepared according to the periodic properties of the elements is shown below. The symbols shown are not standard.

A							B
			C			D	
	E	F			G		
H							

(i) Using the above symbols write 2 elements each belonging to the same group and period.

(a) Same group …….. (01)

(b) Same period …….. (01)

(ii) Consider the atom of element "H" (03)

(a) Number of energy levels ……...

(b) Number of electrons at last energy level ……

(c) Write the electronic configuration …….

(iii) Choose each element and the corresponding characteristic from the given statements and complete the table (05)

1. A non metal with high electronegativity ……
2. There us a stable electron configuration in the outermost energy level ……..
3. The hydroxide of this element is basic and it is used to neutralize the acidic nature of stomach ……
4. The valency is 4 ……..
5. The oxide of this element is acidic and affects for acid rains ……

symbol	Symbol of the standard element	The number representing the characteristic
B		
C		
D		
E		
G		
H		

(iv) The element F is used to make many item in day today life. It's oxide layer acts as a protective layer and prevent the corrosion of metal. Identify this metal and answer the following questions.

(a) What is the metal ? ..... (01)

(b) What is the period of it? ..... (01)

What is the group of it? ..... (01)

(c) Valancy of "F" is ..... (01)

(d) The formula of the chloride of "F" is ..... (01)

4) By applying a force to an object, it can be pused, pulled and rotated around a point.

(i) Which of the above situation related with moment? (01)

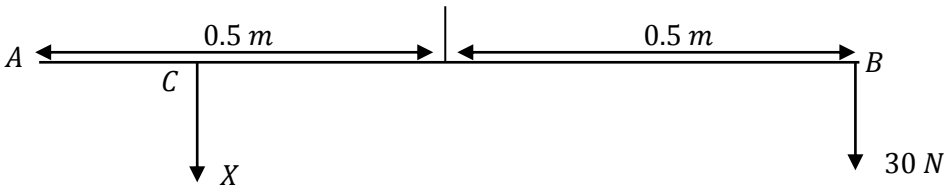
.....

(ii) Name 2 factors affect for the moment. (01)

.....

.....

(iii) As shown in the figure below a uniform rod AB of length 1m is balanced and suspended from the center.



(a) If a weight of 30N is attached to end B, find the moment produced by it. (02)

.....

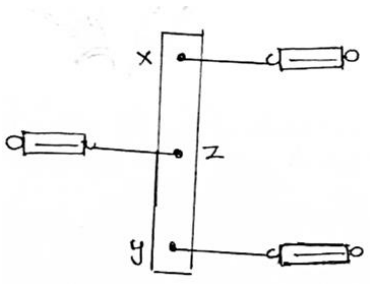
.....

(b) Find the weight that should be hung at "C" 0.3m away the midpoint to rebalance the rod. (02)

.....

.....

(B) Three Newton balances are attached to three holes marked x, y and z on a wooden strip.



(i) Mark the forces acting on the wooden strip. (01)

(ii) When the wooden bar is at rest, the reading on the Newton balance x is 8N. The reading of the Newton balance y is 8N. Find the reading of z? (01)

……..

(iii) Find the resultant force of this situation. (01)

……..

(iv) Write two requirements for an object to be in equilibrium under 3 parallel forces. (02)

……..

……..

(C) The ability to do a work is an energy.

(i) Write 2 forms of mechanical energy. (01)

……..

……..

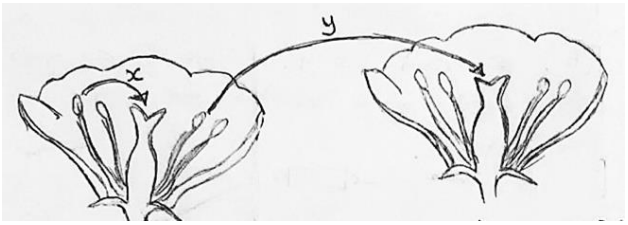
(ii) Find the potential energy of an object of mass 3.2kg, when it is 4m above the ground. $(g = 10\ ms^{-2})$ (02)

……..

Part – *B*

∗ **Answer only three questions.**

5) (A)



The above figure shows two ways in which mature pollen is deposited on the stigma of a flower of the same species.

(i) Name the above 2 methods of pollination (02)

(ii) Write 2 adaptation for minimizing x pollination method. (02)

(iii) The above flowers produce green and yellow pods are homozygous dominant and yellow pods.. Draw a punnet square and show the inheritance of colour of the pods by pollination Y. (02)
(Green - G , Yellow - g)

(iv) Write down the ratio of phenotype and ratio of genotype, in F_2 generation. (02)

(v) Given pods are homozygous dominant and yellow pods.

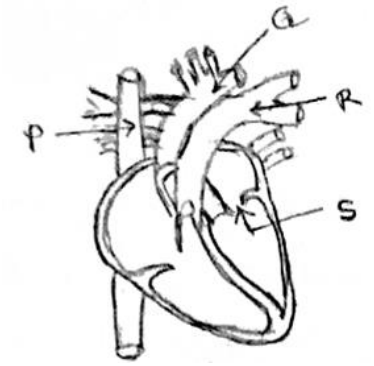
(vi) What is the method of obtaining large number of new plants by a vegetative part of a plant under controlled conditions? (01)

(vii) Name the vegetative parts of followings. (02)

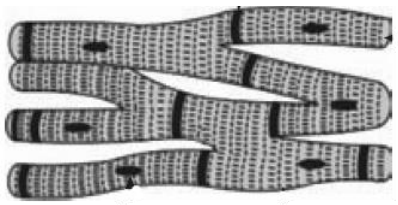
(a) Gotukola

(b) Ginger

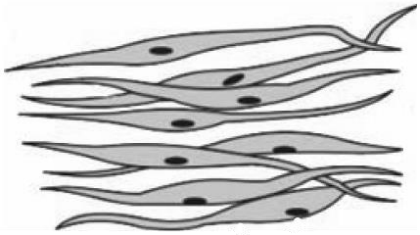
(B) Below are diagrams of several organs and cells in the human body.



A



B



C

(i) Name the parts P, Q, R, S in A (02)
(ii) Name the tissue "B" (01)
(iii) Name a special feature that can be seen in "B" (02)
(iv) Write one similarity and one difference between cells B and C (02)
(v) Write 2 places where "C" cells can be found in the human body. (02)

6) (A) Knowledge of chemical calculations as well as the rate of reactions is very useful in the chemical industries.

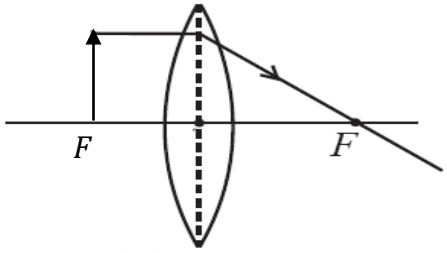
(i) What is relative molecular mass? (01)
(ii) Ammonia gas is produced by reacting nitrogen and hydrogen gases under constant pressure and temperature
  (a) Write balanced chemical equation for the above reaction. (02)
  (b) Find the mass of nitrogen gas required to produce 102kg of ammonia gas. $(N = 14\,, H = 1)$ (02)
(iii) Urea $[CO(NH_2)_2]$ is produced by using ammonia gas.
  (a) Find the relative molecular mass of urea. $(C = 12\,, O = 16\,, N = 14\,, H = 1)$ (01)
  (b) Find the percentage of nitrogen contained in Urea. (02)
(iv) Write 2 other factors that affect the rate of a reaction, other than the concentration of the reactants. (02)

(B) The copper sulphate solution is used as a fungicide. A label on the container containing the copper sulphate solution stated as follows.

Solution of $1\ mol\ dm^{-3}$

(i) Write two more things that should be included in the above label. (02)
(ii) Name the solute and the solvent of the above solution. (01)
(iii) Name an equipment that can be used to measure the mass of $CuSO_4$ accurately (01)
(iv) 250ml of 1 $mol\ dm^{-3}$ $CuSO_4$ solution is prepared.
  (a) Find the amount of $CuSO_4$ in moles $(Cu = 63.5\,, S = 32\,, O = 16)$ (01)
  (b) Find the mass of $CuSO_4$ in the solution. (02)
(v) Name 2 laboratory equipment's which need to prepare 250ml of 1 $mol\ dm^{-3}$ $CuSO_4$ solution (02)

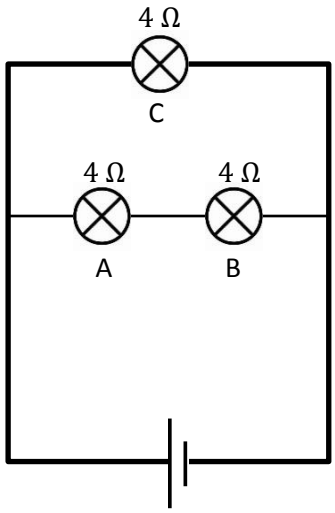
7) (A) The object is placed between the convex lens and the focal point at the principal axis.



Copy the above diagram in your answer script.

(i) Name the center of curvate of the convex lens as "2F" and the optic center as "C". (02)
(ii) Complete the above ray diagram and obtain the image. (01)
(iii) Draw the images and name it as "I" (01)
(iv) Write 2 characteristics of the image. (01)
(v) Write an example for the formation of above image in daytoday life. (01)

(B) The following circuit is made to light a vesak lantern.



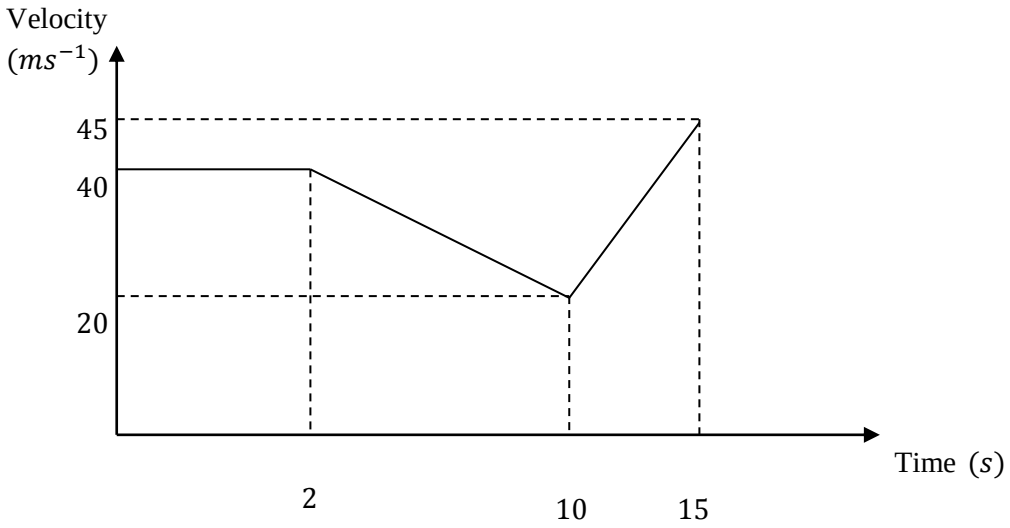
(i) Name the method of connection of the bulbs A and B (01)
(ii) The bulbs are marked as $4\Omega / 12V$. What are these two measurements? (02)
(iii) Find the electric current flows through bulb "C" (01)
(iv) Is the light emitted from the A and B bulbs less or more than the light emitted from bulb "C"? Give reasons (01)
(v) Draw a circuit diagram for the connection of 3 bulbs with maximum brightness and equal brightness (02)
(vi) Name the device that should be connected to the vesak lantern to rotate (01)
(vii) The mass of vesak lantern is 30kg. Find the energy required to lift in 4m. (Consider that energy is not wasted) $g = 10ms^{-2}$

(C) A disturbance that travels through a medium or in space is called a wave.
(i) Name the 2 types of waves that require a material medium for the propagation. (01)
(ii) Name the type of waves that do not require a material medium for propagation (01)
(iii) Name the type of wave used for the following task. (02)
(a) Destroying cancer cells
(b) Checking the secret codes on currency notes.

8) (A) Spreading away of the fruits and seeds from the mother plant is referred to as dispersal of fruits and seeds.
(i) Name 4 principle methods of dispersal of fruits and seeds (02)
(ii) Mention adaptations that each fruit or seed has for its method of dispersal. (02)
(a) Cashew
(b) Mango
(c) Nagadarana
(d) Hora

(iii) Name 2 external factors necessary for seed germination. (02)
(iv) What is seed dormancy? (02)
(v) Name 2 factors affect for the dormancy of seeds. (02)

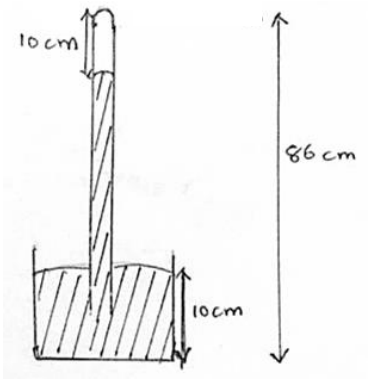
(B) The velocity - time graph of the motion of a bus is shown below.



(i) Describe the motion of bus during first two seconds. (01)
(ii) Find the velocity of the bus before applying the brackes (01)
(iii) Did the bus come to a rest after applying the brackes (01)
(iv) Find the deceleration of the bus after applying the brackes (01)
(v) Find the distance travelled by bus with deceleration (01)
(vi) Find the acceleration of the bus (01)
(vii) If the mass of the bus is 800kg, Find the force gained by the bus during the above acceleration. (01)
(viii) Find the period of time that the bus was travelled with acceleration (01)
(ix) Find the distance travelled by bus with acceleration (01)
(x) Through which medium is the force transmitted from the brakes to the wheel when breaking? (01)

9) (A) The atmosphere is a mixture of various gases. Nitrogen, Oxygen, and Carbondioxide gases are important to us.
(i) Draw the bonds of the nitrogen molccule by a Lewis structure (02)
(ii) O_2 gass is produced at the laboratory.
  (a) Name 2 chemicals that can be heated to produce O_2 (02)
  (b) Write balanced chemical equation the above reaction (02)
(iii) Write 2 uses of carbondioxide (02)
(iv) Write 2 physical properties of CO_2 gas. (02)

(B) The following diagram is the mercury barometer which is used to measure atmospheric pressure.

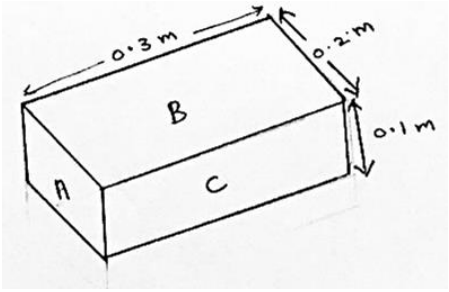


(i) What is the height of the mercuray column related to atmospheric pressure? (01)

(ii) Find the atmospheric pressure
(Density of Hg $= 13600\ kgm^{-3}$, $g = 10ms^{-2}$) (02)

(iii) What happens to the 10cm of vacuum if the glass tube is tilted? (01)

(C) The image shows a wax block made by paraffin.



(i) Name the surface which exerts the highest pressure on the contact surface? (01)

(ii) (a) Write the transformation of the physical state when the wax block is heated. (02)

(b) What is the name of the constant temperature, of the above changing in physical state. (01)

(iii) If the mass of the wax block is 500g, find the pressure exerted on the contact surface by the surface "C" (02)