

බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව மேல் மாகாணக் கல்வித் திணைக்களம் Department of Education - Western Province				
වර්ෂ අවසාන ඇගයීම - 2025 ஆண்டிறுதி மதிப்பீடு - 2025 Year End Evaluation - 2025				
ශ්‍රේණිය } தரம் } 11 Grade }	විෂය } பாடம் } Subject }	Science	පත්‍රය } வினாத்தாள் } I Paper }	කාලය } காலம் } One Time } Hour
නම } பெயர் } Name }		විභාග අංකය } சுட்டிலக்கம் } Index No. }		

Important:

- * Answer all questions.
- * In each of the questions 1 to 40, pick one of the alternatives (1), (2), (3), (4) which you consider as correct or most appropriate answer.
- * Mark a cross(X) on the number corresponding to your choice in the answer sheet provided.
- * Further instructions are given on the back of the answer sheet. Follow them carefully.

1. Digestion begins in the mouth itself. Which of the following is the enzyme present in the saliva that contributes to this?
 (1) Amylase (2) Lipase (3) Maltose (4) Lactase
2. What is the number of moles of hydrogen atoms contain in one mole of the compound $\text{CH}_3(\text{COOH})$?
 (1) 1 mol (2) 3 mol (3) 4 mol (4) 8 mol
3. Flowering plants are classified as unisexual or bisexual based on the nature of their flowers. Accordingly, which of the plants listed below produces unisexual flowers?
 (1) Long beans (2) Thunbergia (3) Coconut (4) Sesbania Katurumurunga
4. Which of the following contains oxides arranged in ascending order of acidity?
 (1) Na_2O , SO_3 , MgO (2) SiO_2 , Al_2O_3 , P_2O_5
 (3) Cl_2O_7 , SO_3 , P_2O_5 (4) Na_2O , Al_2O_3 , Cl_2O_7
5. Which of the following blood vessels in the human body has the highest concentration of a drug?
 (1) Renal vein (2) Inferior vena cava (3) Hepatic vein (4) Hepatic portal vein
6. There are several types of microscopes used in scientific experiments. A simple microscope is used as,
 (1) a convex lens. (2) a concave lens. (3) a convex mirror. (4) a concave mirror.
7. Consider the following statements about the phide ion S^{2-} .
 A- The electron configuration is 2, 8, 4.
 B- The valency is 2.
 C- The number of electrons is less than the number of protons.

Which of the above statements is true?

- (1) only A. (2) only B. (3) only C. (4) all A, B and C.



8. The unit used to measure pressure is Pa. which of the following is equal to this?
 (1) kg m s^{-2} (2) $\text{kg m}^{-2} \text{s}^{-1}$ (3) $\text{kg m}^{-1} \text{s}^{-2}$ (4) $\text{kg m}^{-2} \text{s}^{-2}$
9. The organ that produces the bile required for the emulsification of lipids during food digestion is
 (1) Gallbladder. (2) Liver. (3) Pancreas. (4) Intestinal wall.
10. Select the correct option that shows the systolic pressure and diastolic pressure of a healthy person, respectively.
 (1) 70 – 80 mm Hg, 110 – 120 mm Hg (2) 50 – 100 mm Hg, 150 – 180 mm Hg
 (3) 110 – 120 mm Hg, 70 – 80 mm Hg (4) 150 – 180 mm Hg, 50 – 100 mm Hg
11. The component used for half-wave rectification of an alternating electric current is
 (1) transistor. (2) diode. (3) capacitor. (4) resistor.
12. Which option correctly shows all the species present in an aqueous solution of sodium hydroxide?
 (1) Na^+ , O^{2-} , H_2O , H^+ (2) NaOH , Na^+ , OH^- , H_2O
 (3) Na^+ , OH^- , H^+ , H_2O (4) H^+ , OH^- , H_2O , NaOH
13. Which of the following is an application of elastic potential energy?
 (1) Shooting a stone with a catapult. (2) Rotating a turbine with a jet of water.
 (3) Lifting a vehicle with a jack. (4) Drawing water from a well using a pulley.
14. The number of turns in the primary coil of a transformer is 30. The number of turns in the secondary coil is 600. A direct current flows through the primary coil under a potential difference of 6 V. The potential difference induced in the secondary coil is,
 (1) 30 V (2) 60 V (3) 120 V (4) 0 V
15. Which of the following is an example of a cranial reflex?
 (1) Withdrawing the hand immediately when it touches something hot.
 (2) Withdrawing the foot immediately when a thorn pricks it.
 (3) A jerk in the knee when the knee is tapped with a rubber hammer.
 (4) Closing the eyelids when something is about to hit the eye.
16. Which of the following is an external substance required for photosynthesis?
 (1) Oxygen (2) Solar energy (3) Chlorophyll (4) Water
17. Which answer correctly shows the constituent elements present in nucleic acids?
 (1) Carbon, Hydrogen, Oxygen, Nitrogen and Phosphorus
 (2) Carbon, Hydrogen, Oxygen, Nitrogen and Sulphur
 (3) Carbon, Hydrogen, Oxygen, Phosphorus and Sulphur
 (4) Carbon, Hydrogen, Oxygen, Phosphorus and Magnesium
18. The balanced chemical equation for the extraction of iron is shown below.

$$\text{Fe}_2\text{O}_3 + 3\text{CO} \longrightarrow 2\text{Fe} + 3\text{CO}_2$$

 Accordingly, what is the amount of moles of carbon dioxide released when 5 moles of hematite are reduced?
 (1) 3 mol (2) 5 mol (3) 15 mol (4) 20 mol



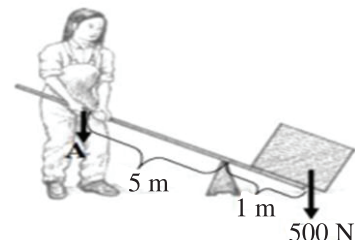
19. Consider the following statements related to heredity:
 (A) An individual is homozygous if the gene pair responsible for a certain characteristic is the same.
 (B) The sexual characteristics of organisms are determined by genes.
 (C) The pair of sex chromosomes in humans is identical.
 Which of these statements are true?
 (1) only A. (2) only B. (3) only A and B. (4) only B and C.
20. Select the correct answer about greenhouse gases from the options below.
 (1) Carbon dioxide is the only gas that can cause the greenhouse effect.
 (2) Greenhouse gases contribute to maintaining a climate favorable for life on Earth.
 (3) An increase in the concentration of greenhouse gases causes a decrease in global warming.
 (4) Human activities are the only cause for the emission of greenhouse gases.
21. Which answer shows a metalloid and a semiconductor respectively?
 (1) Al, Si (2) B, Ge (3) Si, B (4) B, Al
22. Which of the following compounds contains only covalent bonds?
 (1) NH_4Cl (2) $\text{C}_2\text{H}_5\text{OH}$ (3) NaOH (4) CaCO_3
23. Several statements regarding muscle cells are given below. Which statement is correct?
 (1) Skeletal muscle cells and cardiac muscle cells are striated.
 (2) Smooth muscle cells and cardiac muscle cells are striated.
 (3) Skeletal muscle cells and smooth muscle cells are striated.
 (4) Skeletal muscle cells, smooth muscle cells and cardiac muscle cells are striated.
24. Which of the following is **not** a characteristic of meristematic tissue?
 (1) Presence of large nuclei in the cells.
 (2) Cell walls are thick.
 (3) Absence of chloroplasts.
 (4) Presence of a large number of mitochondria.
25. A solution of sodium carbonate is prepared by dissolving 53 g of sodium carbonate in 180 g of water. What is the mole fraction of sodium carbonate in the solution ($\text{Na} = 23$, $\text{C} = 12$, $\text{H} = 1$, $\text{O} = 16$)?
 (1) $1/5$ (2) $2/5$ (3) $1/10$ (4) $1/21$
26. Consider the following statements related to respiration:
 A-Taking oxygen-containing air into the lungs is external respiration.
 B - Cellular respiration is the process of oxidizing simple food in living cells to produce the energy required for vital activities.
 C - Alcoholic fermentation is aerobic respiration.
 Which of the above statements are correct?
 (1) only A and B. (2) only B and C. (3) only A and C. (4) all A, B and C.
27. Which of the following statement is correct regarding hydrocarbons?
 (1) Alkanes have greater reactivity than alkenes.
 (2) Alkenes contain only C-H bonds and C-C bonds.
 (3) C_2H_4 has 6 covalent bonds.
 (4) The general formula for alkenes is $\text{C}_n\text{H}_{2n+2}$



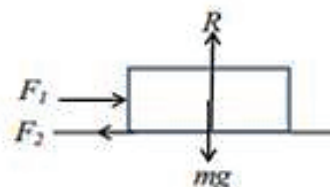
28. Which phenomenon below **cannot** be explained by the intermolecular attractions between water molecules?
- (1) High boiling point of water.
 - (2) Lower density of ice than water.
 - (3) High specific heat capacity of water.
 - (4) Evaporation of water at any temperature.

29. The figure shows how a rod is used to lift a wooden block. What is the minimum force that must be applied to the rod at A for this?

- (1) 50 N
- (2) 100 N
- (3) 500 N
- (4) 2500 N



30. The figure shows an object moving at a uniform velocity on a horizontal plane. The applied force for the motion is denoted by F_1 . F_2 denotes the frictional force, and R denotes the normal reaction. mg is the weight of the object. Several statements regarding the above forces are given below.

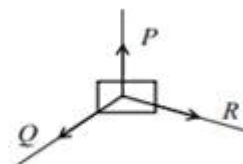


- A) $F_1 = F_2$
- B) $F_1 > F_2$
- C) $F_1 < F_2$
- D) $mg = R$

Which of these statements are correct?

- (1) only A and B.
- (2) only B and D.
- (3) only A and D.
- (4) only C and D.

31. Three coplanar concurrent forces acting on an object are denoted as P , Q , and R . The object is at rest under the influence of these forces. Which statement among those concerning the forces P , Q , and R is correct?



- (1) $P + Q = R$
- (2) $P = Q = R$
- (3) $P + Q > R$
- (4) Resultant of forces Q and $R = P$.

32. Some of the specifications of an immersion heater are given below: 230 V, 1000 W, 50 Hz. What is the amount of electrical energy consumed in two minutes when this operates at maximum power?

- (1) $\frac{1000}{2} \text{ J}$
- (2) $\frac{1000}{2 \times 60} \text{ J}$
- (3) $1000 \times 2 \times 60 \text{ J}$
- (4) $1000 \times 2 \text{ J}$

33. Consider the following statements related to the electrolysis of an aqueous sodium chloride solution using carbon electrodes.

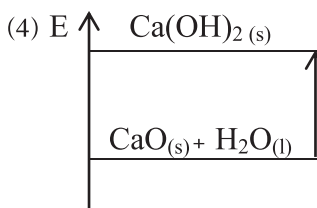
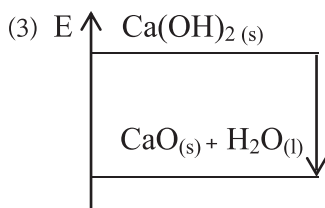
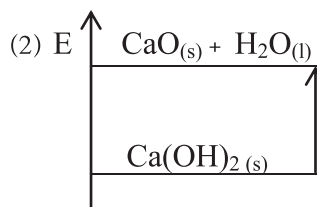
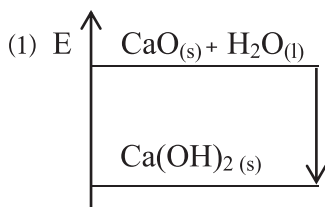
- A - Chlorine gas is released near the anode.
- B - Hydrogen gas is released near the cathode.
- C - The basicity (alkalinity) of the solution gradually increases.

Which of the above statements are true?

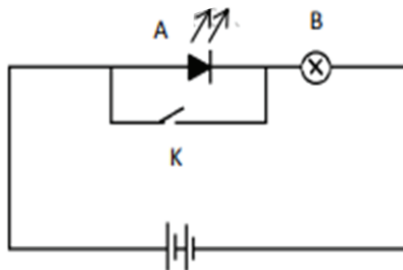
- (1) only A and B.
- (2) only B and C.
- (3) only A and C
- (4) all A, B and C



34. Below is a description of an athlete who ran the 400 m race on a 200 m circular track. What is the correct description about this
- (1) The displacement of the athlete is 200 m, and the distance traveled is 400 m.
 - (2) The displacement of the athlete is 0 m, and the distance traveled is 200 m.
 - (3) The displacement of the athlete is 400 m, and the distance traveled is 0 m.
 - (4) The displacement of the athlete is 0 m, and the distance traveled is 400 m
35. What is the correct energy level diagram for the production of slaked lime by adding water to quicklime?



36. A clear image of a distant coconut tree was formed at a distance of 20 cm from the optical center of a convex lens. A lit candle was placed at a distance of 30 cm from the optical center of this lens. What is the nature of the image of the candle flame formed?
- (1) Real, inverted, magnified.
 - (2) Virtual, inverted, magnified.
 - (3) Real, erect, magnified.
 - (4) Virtual, erect, magnified.
37. A circuit consisting of an LED (A), a torch bulb (B), and a battery is shown below.



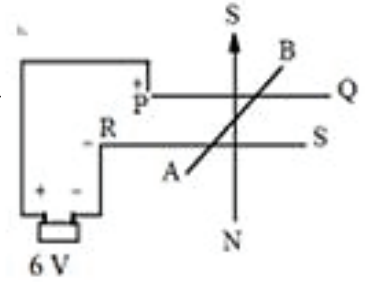
Four statements regarding the above circuit are given below.

- A) When switch K is closed, only B lights up.
- B) When switch K is closed, both A and B light up.
- C) When switch K is open, both A and B light up.
- D) When switch K is open, A lights up and B does not light up.

Which of these statements are correct?

- (1) only A and B.
- (2) only A and C.
- (3) only B and C.
- (4) only B and D.

38. The figure shows two parallel copper conductors PQ and RS. AB is another copper conductor placed perpendicular to them on top. The terminals of a 6 V direct current supply are connected to the terminals P and R. A magnetic field is applied from the N direction to the S direction.



Which statement below regarding this setup is **false**?

- (1) When current flows through the circuit, the conductor rod AB rolls to the left.
 - (2) When current flows through the circuit, the conductor rod AB rolls to the right.
 - (3) When a light copper wire is used for AB, the rolling speed increases.
 - (4) The battery runs down quickly when the activity is carried out.
39. Consider the four statements given below
- (a) Painting the inner walls of the house with dark colours
 - (b) Obtaining electricity from solar panels.
 - (c) Maintaining a small biogas unit
 - (d) Using wastewater for crop cultivation

Of the above, the statements that are considered for a house designed using natural energy sources in an optimal way are,

- (1) a and b only (2) only b and c (3) only a, b and c (4) only b, c and d
40. Four modern trends are represented by A, B, C, and D.
- A - Reducing the food mile.
 B - Minimizing the carbon footprint.
 C - Not paying attention to the water footprint.
 D - Using products that can be recycled and reused.

Which of these should be followed by a sustainable and environmentally friendly consumer?

- (1) only A and B. (2) only A, B and D. (3) only B and D. (4) only B, C and D

බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව மேல் மாகாணக் கல்வித் திணைக்களம் Department of Education - Western Province			
වර්ෂ අවසාන ඇගයීම - (2025) ஆண்டிறுதி மதிப்பீடு - (2025) Year End Evaluation - (2025)			
ශ්‍රේණිය தரம் Grade	11	විෂයය பாடம் Subject	Science
නම பெயர் Name			
පත්‍රය வினாத்தாள் Paper	II	කාලය காலம் Time	Three Hours
විභාග අංකය சுட்டிலக்கம் Index No.			

Instructions:

- * Write your answers in neat handwriting.
- * Answer the four questions in Part A, in the space provided.
- * Of the five questions in Part B answer three questions only.
- * After answering, tie Part A and the answer script of Part B together and hand over.

1. (A) The picture below shows a municipal solid waste disposal site. Improper disposal of garbage affects land, water, and air pollution.



The list below shows a few materials found in the above garbage pile:

Discarded food, polythene pieces, plant leaves and twig pieces, a dead animal's body, yogurt cups, paper pieces, discarded batteries, synthetic fabric pieces.

- (i) Write down two materials for each biodegradable and non-biodegradable from the above list. (02 Marks)
-
- (ii) Collection of which material as waste can be minimized by reducing its use. (01 Mark)
-
- (iii) Write the names of two gases released from the garbage pile that cause an unpleasant odour in the environment. (02 Marks)
-
- (iv) Name two groups of organisms that act as decomposers. (02 Marks)
-
- (v) Name a hydrocarbon released during the decomposition of garbage that can cause a fire in the garbage dumping site. (01 Mark)
-
- (vi) Write a benefit that can be gained by effectively managing the above garbage at home (01 Mark)
-



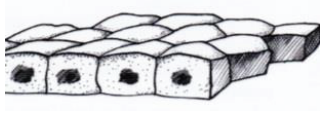
- (B) Moving towards fast food is one reason for humans to contract with non-communicable diseases.
- (i) Write down two non-communicable diseases that humans can contract due to fast food. (02 Marks)
 -
 - (ii) Write down two other causes for non-communicable diseases. (02 Marks)
 -
 - (iii) Name a heavy metal that can enter the human body through food. (01 Mark)
 -
 - (iv) Write a method by which heavy metals can be added to the environment. (01 Mark)
 -
- (Total marks 15)**

- 2 (A) (i) A squirrel that was eating food immediately ran away, making a noise, when it heard a dog barking. Mention 2 characteristic of living organisms mentioned here. (02 Marks)
-
- (ii) A few organisms that were found in this garden are listed below:
 Earthworm, Centipede, Snail, Frog
 Write the name of organism from the above list suitable for statement given below. (02 Marks)

Statement	Name of organism
(a) belongs to kingdom arthropoda	
(b) has a muscular foot	
(c) body is segmented internally	
(d) a vertebrate	

- (B) (i) A man who was walking in the garden instantly lifted his leg when a thorn pricked his foot. What is the receptor and effector activated here?
- (a) Receptor Effector (02 Marks)
- (ii) Write down the path of conducting impulses for i. above using arrows (02 Marks)
-

- (C) (i) Two types of tissues present in the human body are given below. Identify them and write down a location of them in the human body. (02 Marks)



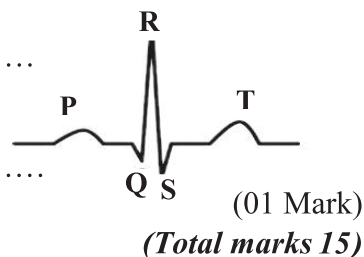
Name of the tissue	Name of the tissue
Location	Location

- (ii) Write down a characteristic seen only in cardiac tissue. (01 Mark)

(iii) An Electrocardiogram (ECG) of a healthy person is shown below. Write down the corresponding stages of the cardiac cycle represented by P, QRS, and T here. (03 Marks)

P - QRS -
T -

(iv) Sexually transmitted diseases can be transmitted through blood transfusion. Name one such disease.



3. (A) The elements of the third period of the periodic table are given sequentially in the table below.

Na	Mg	Al	Si	P	S	Cl	Ar
----	----	----	----	---	---	----	----

(i) Using the symbols given above, write the corresponding symbol for each of the following statements on the dotted line.

- An element that forms an amphoteric oxide.
- The element with the lowest first ionization energy.
- Has the highest electronegativity.....
- Exists as a monoatomic gas. (04 Marks)

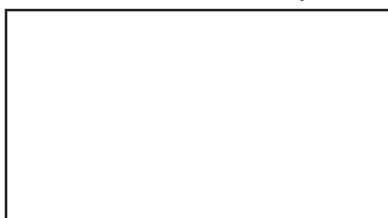
(ii) a) Write the chemical formula of the compound formed by the combination of Al and Cl .

.....

b) What is the type of chemical bond present in the compound mentioned in (ii)(a) above?

..... (02 Marks)

(iii) Draw the Lewis structure of the molecule formed by the combination of one P atom and 3 Cl atoms in the box provided. (02 Marks)



(iv) Name an artificial polymer and natural polymer with only the elements C and H.

(a) Natural polymerArtificial polymer..... (02 Marks)

(B) Acids and bases are two common chemicals used in the laboratory. Some acids and bases are listed below.

(Nitric acid, Magnesium hydroxide, Hydrochloric acid, Acetic acid, Sodium hydroxide)

Select and write the answer that suits the following statements from these acids and bases listed above.

(i) A weak acid found in the laboratory. (01 Mark)

(ii) Used to produce antacids. (01 Mark)

(iii) A pair that can be used to study neutralization. (02 Marks)

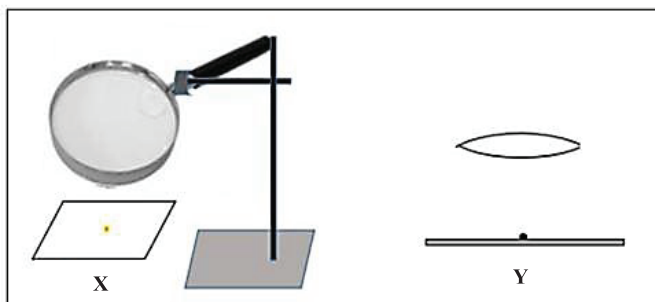
(iv) Used as a raw material in soap production..... (01 Mark)

(Total marks 15)



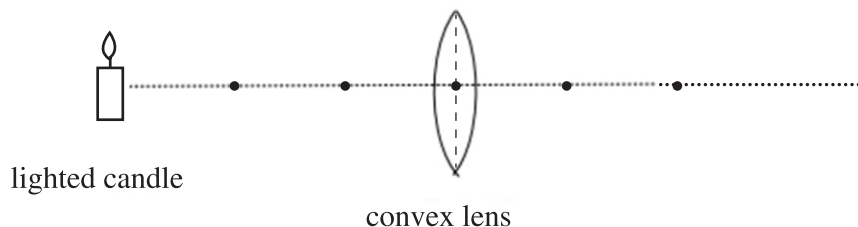
4. (A) An apparatus setup for an experiment conducted by a student to find the focal length of a convex lens is shown below.

As shown in the figure, a clear image of the Sun was obtained on a piece of paper using the lens.



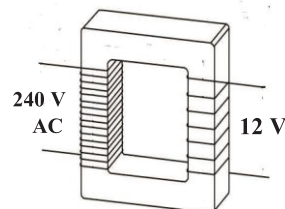
- Draw a ray diagram in Figure Y to show how the incident light rays refract. (02 Marks)
- The distance between the lens and the image is obtained as 15 cm. What is the radius of curvature of the lens? (01 Mark)
- Name another optical device that can be used to obtain the real image (a small patch of light) formed here? (01 Mark)
.....
- It was observed that after some time, a black spot formed on the paper and the paper burned. What is the reason for this? (02 Marks)
.....

- (B) An apparatus setup for an experiment conducted to study the images formed by the above lens is shown below.



A candle is placed at a distance of 50 cm from the lens. The screen has been adjusted to obtain a clear image of it. The dotted line indicates the principal axis of the lens.

- Write 2 characteristics of the image formed. (02 Marks)
 - Draw a ray diagram on the above figure to show the location of the image formed (02 Marks)
 - If the candle is placed 30 cm away from the lens, how far from the lens, the screen should be placed to obtain a clear image? (01 Mark)
- (C) The following transformer has been used to supply electricity to 12 V lamp from the 240 V domestic supply.
- What is the type of transformer shown here? (01 Mark)
 - If the number of turns in the primary coil of the transformer is 4800, find the number of turns in the secondary coil. (02 marks)



(Total marks 15)



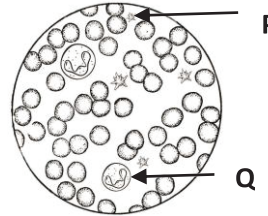
Part B

● Answer three questions only, from questions No. 5, 6, 7, 8 and 9.

5. (A) Human body features are not identical. Many differences are observed among them. This is due to heredity. The study of this is known as genetics.
- (i) Write 2 inherited traits that can be seen in humans. (02 Marks)
- (ii) Write two reasons why Mendel chose the garden pea plant for his heredity experiments. (02 Marks)
- (iii) According to the inheritance pattern of traits when a monohybrid cross is performed between a pure tall (TT) and a pure dwarf (tt) plant, write the genotypes of the F_1 , F_2 generations. (03 Marks)

- (B) When a blood sample of a patient suffering from a genetic disease was examined under a microscope, the observation was as shown in the figure below.

- (i) Name the corpuscles P and Q shown here. (02 Marks)
- (ii) Write 2 main components of blood tissue. (01 Mark)
- (iii) Write 2 functions of blood tissue. (02 Marks)
- (iv) The power required for blood circulation in organisms is provided by the heart.
- a). Write two good habits that contribute to healthy blood circulatory system (02 Marks)
- b). Write down two diseases associated with blood circulatory system (02 Marks)



- (C) Water is a major component essential for living organisms.

- (i) Indicate how the following special properties of water contribute to maintaining life.

Specific properties

contribution to maintain life

A good solvent

.....

A medium of transport

..... (02 Marks)

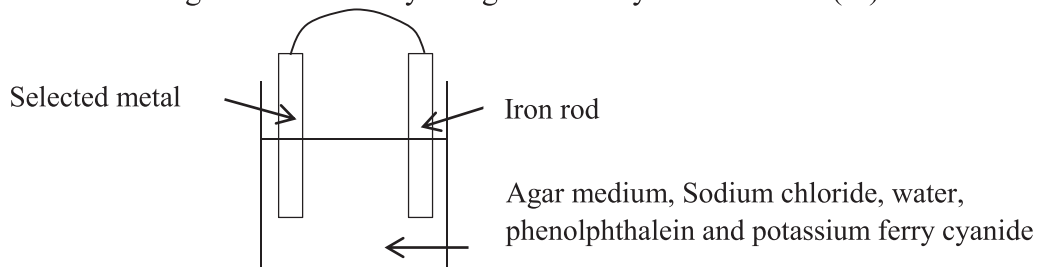
- (ii) Name a disease condition related to the digestive system caused by drinking less water than necessary. (01 Mark)

- (iii) Mention an essential component that should be contained in food to prevent the disease condition you mentioned above. (01 Mark)

(Total marks 20)

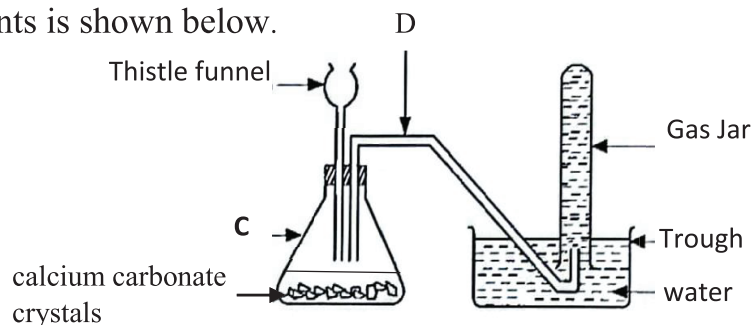
6. (A) The deterioration of metallic objects due to environmental effects is called corrosion. The corrosion of iron is called rusting.

- (i) Name two factors essential for the rusting of iron. (01 Mark)
- (ii) What is the main method used to protect iron structures such as GI pipes, buckets, and roofing sheets from rusting? (01 Mark)
- (iii) Which of the three metals given below Zn, Cu and Pb is most suitable for protecting underground iron plates from rusting? (01 Mark)
- (iv) Rusting is an electrochemical process. A student set up the following apparatus to demonstrate the prevention of rusting in the laboratory using the metal you selected in (iii) above.



- (a) What is the energy conversion that occurs in the above cell? (01 Mark)
- (b) What is the metal that acts as the anode here? (01 Mark)
- (c) What is the observation that can be seen near the iron metal piece? (01 Mark)
- (d) Write the half-reaction that occurs near the iron metal piece (02 Marks)
- (v) What is the common process that occurs at the anode in an electrochemical cell and an electrolytic cell? (01 Mark)

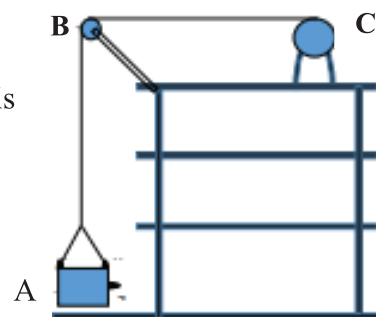
(B) A setup used to produce carbon dioxide gas using calcium carbonate and hydrochloric acid as reactants is shown below.



- (i) Name the apparatuses C and D in the setup. (02 Marks)
- (ii) A student states that there is a defect in the setup. Identify this defect and mention how it should be corrected. (02 Marks)
- (iii) State an additional advantage of collecting the gas by connecting the delivery tube to a syringe instead of the method shown in the above setup. (01 Mark)
- (iv) Write the balanced chemical equation for the reaction taking place in the apparatus C (02 Marks)
- (v) If 50 g of CaCO_3 were used for this activity, calculate the number of carbon dioxide molecules released. $\text{CaCO}_3 = 100 \text{ g mol}^{-1}$, $L = 6.022 \times 10^{23}$ (03 Marks)
- (vi) State an industrial use of carbon dioxide gas. (01 Mark)

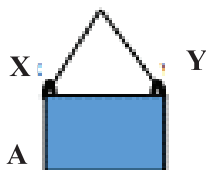
(Total marks 20)

- 7 The figure shows an arrangement used to lift sand to the upper floor for the construction of a multi-story building.
- The box A filled with sand has a mass of 10 kg and a rope is attached to the wire tied to the hooks X and Y on it. The other end of the rope is connected to an electric motor labeled C, which provides the necessary force to lift the box after passing over the smooth pulley B.



(A) When the box is barely in equilibrium just above the ground,

- (i) Copy the figure below and mark the forces acting on the box A



(01 Mark)

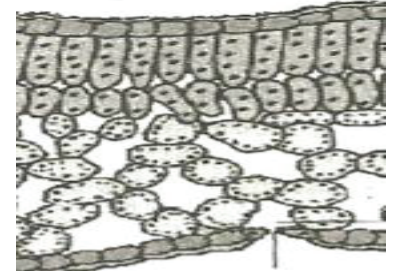
- (ii) Write 2 requirements that these forces must satisfy for the box to remain in equilibrium. (02 Marks)
- (iii) Find the tension in the rope connected to the pulley in the equilibrium state. (02 Marks)
- (iv) Write the Newton's law that helped to find the tension. (02 Marks)



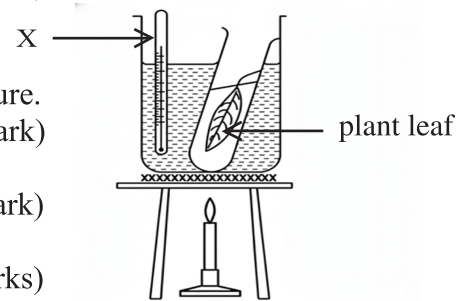
- (B) (i) If the tension in the rope is increased to 101 N , write the magnitude and the direction of the resultant force (02 Marks)
(ii) Calculate the acceleration of the box at that moment. (02 Marks)
(iii) What is the type of frictional force when the rope is moving around the pulley (01 Mark)
- (C) The box reaches the upper floor after moving for 10 s while maintaining the rope tension at 101 N, and then for 20 s while maintaining it at 100 N.
(i) Draw the velocity-time graph representing the motion. (02 Marks)
(ii) Using the graph, find the velocity of the box at the end of the first 10 s. (02 Marks)
(iii) Using the graph, find the height to the upper floor of the building. (02 Marks)
(iv) Calculate the kinetic energy of the box at the end of 30 s (02Marks)
(Total marks 20)

8. (A) The diagram shows a cross-section of a dicot leaf.

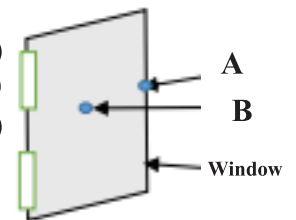
- (i) Name a simple permanent tissue shown here. (01 Mark)
(ii) Write 2 special features that can be seen in this tissue. (02 Marks)
(iii) Write the balanced chemical equation for the photosynthesis process that occurs in the tissue. (02 Marks)
(iv) The main product formed during photosynthesis undergoes aerobic and anaerobic respiration to release energy. In which compound this energy is stored? (02 Marks)



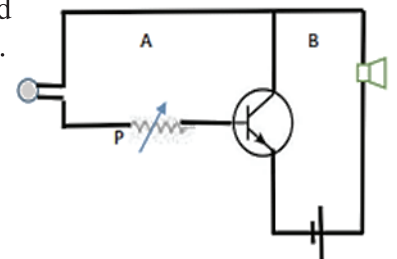
- (B) A set up used the laboratory to extract chlorophyll, which is an essential factor for photosynthesis is shown in the figure.
(i) Name the apparatus labeled as X here. (01 Mark)
(ii) State the standard unit of the quantity measured using that apparatus. (01 Mark)
(iii) Mention a difference between this apparatus and a clinical thermometer. (02 Marks)



- (C) A student attempted to close the adjacent window to prevent the above burner from extinguishing.
(i). A greater force must be applied at position B than at A to close the window. Explain the reason for this using the concept of moment of force. (02 Marks)
(ii). Write the equation for the moment of force above. (01 Mark)
(iii). Write 2 examples of using couple of forces in day to day life. (02 Marks)



- (D) Another group of students brought the following setup, which was created using a transistor, to the classroom. Its circuit diagram is shown below.
(i). Name the circuit A and B shown here. (02 Marks)
(ii) What type of transistor is this? (01 Mark)
(iii) What is the function performed by P? (01 Mark)



(Total marks 20)

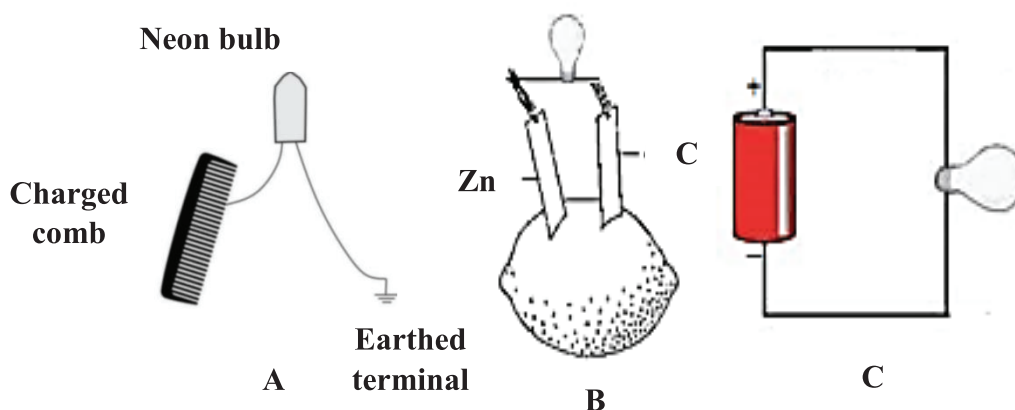


9. (A) The table below shows the observations of two instances of an activity conducted to find the effect of HCl concentration on the reaction rate between Zn metal and dilute HCl.

Instance	concentration of D.HCl (mold m^{-3})	Time taken to finish evolving gas (minutes)
I	X	4
II	Y	8

- Name two factors, in addition to the mass of the Zn metal, that must be kept constant in both instances of this experiment. (02 Marks)
- Which instance out of X and Y has the higher concentration? (01 Mark)
- If the volume of H_2 gas evolved during 4 minutes in instance I is 10.00 cm^3 calculate the rate of reaction. (02 Marks)
- Write the balanced chemical equation for the reaction between Zn metal and d. HCl. (02 Marks)
 - What type of chemical reaction between Zn metal and dilute HCl? (01 Mark)
 - By what name, the method used to collect H_2 gas in the laboratory is known? (01 Mark)
- Write an industrial use of H_2 gas. (01 Mark)

- (B) The figure shows 3 setups A, B and C prepared by a student to study electricity.



- Which of the above instances produces electricity without a chemical reaction? (01 Mark)
- Name the anode and cathode in instance B above. (02 Marks)
- Indicate the direction of electron flow in B, from which metal to which metal. (01 Mark)
- Copy the figure C and mark the direction of the conventional current flow in it. (02 Marks)
- When the charged comb was connected to the neon bulb in instance A above, a spark occurred. The student says that a sound was also heard along with it.
 - Mention the two types of waves generated here. (02 Marks)
 - Write two differences between these two types of waves comparatively. (02 Marks)

(Total marks 20)

