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Second Term Test - Grade 11 - 2019

Index No/Name: .... **Science - I** **Time: 01 hour**

Note:
- **Answer all the questions.**
- **In each of the question 1 to 40, pick one of the alternativies (1), (2), (3), (4) which consider is correct or most appropriate.**

(01) An enzyme contained in human stomach is,
   (1) Amylase (2) Lactase (3) Pepsin (4) Sucrase

(02) The foods in plants is transported as which compound?
   (1) As starch (2) As glucose
   (3) As sucrose (4) As amino acid

(03) Which of the following quantities of an object get change when changing the gravitational force.
   (1) Weight (2) Volume (3) Density (4) Mass

(04) Graphite and diamonds are,
   (1) Compounds of carbon (2) Allotrophic forms of carbon
   (3) Molecules of carbon (4) Different physical states of carbon

(05) The sub- atomic particles which have a highest contribution to the mass of an atom are,
   (1) Electron and proton (2) Electron and neutron
   (3) Proton and neutron (4) Electron, proton and neutron.

(06) The basic structural unit of a kidney is nephron. The glomerule of a nephron is made up of,
   (1) Capillaries of arteries.
   (2) Capillaries of veins.
   (3) Capillaries of arteries and veins.
   (4) Capillaries of arteries and lymphatic capillaries.

(07) The varities of white blood cells shown in A and B respectively are,
   (1) Eosinophils and lymphocytes.
   (2) Neutrophils an Basophills.
   (3) Neutrophils and Monocytes.
   (4) Monocytes and lymphocytes.

A   B

(08) An inorganic compound contained in living body is,
   (1) Lipid (2) Starch (3) Water (4) Protein

(09) The relative molecular mass of the compound XH_4 is 16. If H = 1 What is the relative atomic mass of X,
   (1) 12 (2) 15 (3) 17 (4) 20

(10) In order to test the accuracy of ohm's law, a student drew a graph against the current and the potential difference using the data obtained. This graph would be,
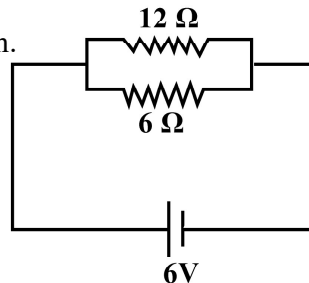
(1)
(V) ↑

(I) →

(2)
(V) ↑

(I) →

(3)
(V) ↑

(I) →

(4)
(V) ↑

(I) →
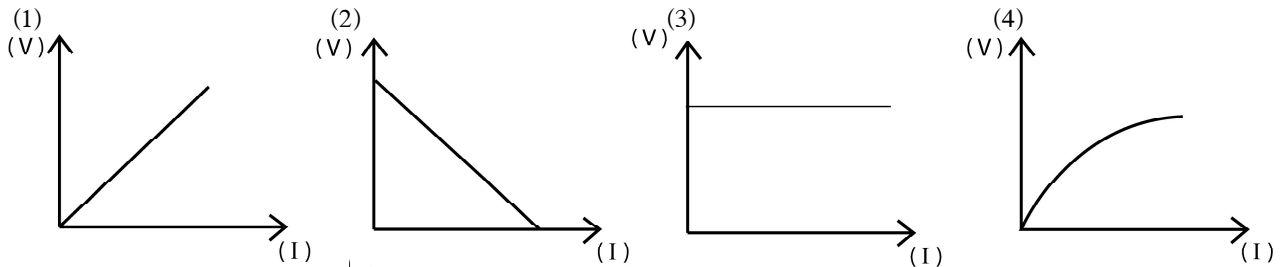
(11) An object with the mass of 800 g was projected vertically up wards with the velocity of 30 ms^{-1}. What is the kinetic energy when the object starts to move upwards from the earth.

(1) $\frac{1}{2} \times \frac{800}{1000} \times 30 \times 2$ J

(2) $\frac{1}{2} \times \frac{1000}{800} \times 30 \times 2$ J

(3) $\frac{1}{2} \times \frac{800}{1000} \times 30 \times 30$ J

(4) $\frac{1}{2} \times \frac{1000}{800} \times 30 \times 30$ J

(12) What is the equivalent resistance of the above system.

(1) $4\,\Omega$
(2) $24\,\Omega$
(3) $12\,\Omega$
(4) $1\,\Omega$

12 Ω

6 Ω

6V

(13) What is the structure of human which stores the sperms temporarily.
(1) Testes   (2) prostrate gland   (3) Seminal vessicles   (4) Epididymis

(14) A defect caused due to the mutation of gene which is responsible for the production of haemoglobin in a somatic chromosome is,
(1) Albinism   (2) Haemophillia
(3) Thalassemia   (4) Red - green colour blindness.

(15) Select the answer which contain two animals belong to an animal group which shows evolutionary relationships with the group vertebrates.
(1) Star fish, slug   (2) Slug, cuttle fish
(3) Sea urchin, Star fish   (4) Dolphin, whale

(16) Which optical devices always provide a virtual image when an object is placed in front of A, B, C, D optical devices.
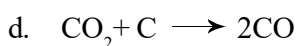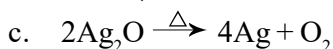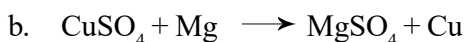
A   B   C   D
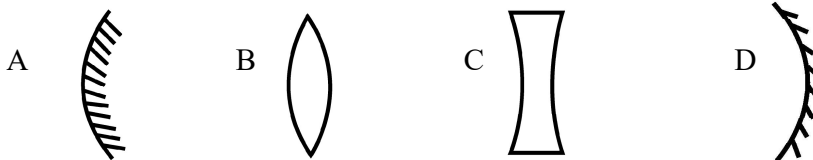
(1) A and C   (2) B and C   (3) A and D   (4) B and D

(17) The doctor who tested the blood of a person who was suffering from fever for several days and said that, this health condition is dengue, The most possible component in blood to take that decision would be,
(1) Red blood cells   (2) White blood cells.
(3) Platelets.   (4) Blood plasma

(18) What is the correct answer which indicates the correct order of the following types of reactions.

a. $BaCl_2 + Na_2SO_4 \longrightarrow BaSO_4 + 2NaCl$

b. $CuSO_4 + Mg \longrightarrow MgSO_4 + Cu$

c. $2Ag_2O \xrightarrow{\triangle} 4Ag + O_2$

d. $CO_2 + C \longrightarrow 2CO$

	a	b	c	d
(1)	Single displacement	Double displacement	Decomposition	Combination
(2)	Double displacement	Single displacement	Decomposition	Combination
(3)	Decomposition	Combination	Single displacement	Double displacement
(4)	Combination	Decomposition	Double displacement	Single displacement

(19) The mass of a Na atom is 3.819×10^{-23} g and the value of atomic mass unit 1.66×10^{-24} g. What is the correct answer relevant to the relative atomic mass of sodium.

(1) $\dfrac{1.66 \times 10^{-24} g}{3.819 \times 10^{-23}}$

(2) $\dfrac{3.819 \times 10^{-23} g}{1.66 \times 10^{-24} g}$

(3) $\dfrac{1.66 \times 10^{-24} g}{3.819 \times 10^{-23} g \times \dfrac{1}{12}}$

(4) $\dfrac{3.819 \times 10^{-23} g}{1.66 \times 10^{-24} g \times \dfrac{1}{12}}$

(20) Followings are three methods to extract metals.

x - Separated by heating the oxide with carbon.

y - Separated by electrolysis of fussed chloride.

z - Separated from the ores.

The decreasing order of reactivity of these three metals is,

(1) x, y, z

(2) y, x, z

(3) y, z, x

(4) z, y, x

(21) Followings are few statements about the cell.

a - The structural and functional unit of life is cell.

b - All the cells are produced from pre existing cells.

c - All the organisms are created from more than one cell.

The correct statements out of them are,

(1) a and b only.

(2) b and c only.

(3) a and c only.

(4) a, b, c all.

(22) The correct statement regarding the graphite, glucose and air respectively is,

(1) Compound, Element, Homogeneous mixture.

(2) Element, Element , Heterogenous mixture.

(3) Element, Compound, Homogeneous mixture.

(4) Element, Compound, Heterogenous mixture.

(23) It has mentioned as 4.5% V/V H_2SO_4, on a label of a bottle contained in the laboratory. It means.

(1) 100 cm^3 of water contain 4.5 cm^3 H_2SO_4 acid.

(2) 95.5 cm^3 of water contain 4.5 cm^3 of H_2SO_4 acid.

(3) 100 cm^3 of aqeous solution contain 4.5 cm^3 of H_2SO_4 acid.

(4) 95.5 cm^3 of aqeous solution contains 4.5 cm^3 H_2SO_4 acid.

(24) The pure liquids hexane and heptane are mixed to form a liquid homogeneous mixture. The iodine is readily soluble in hexane. According to the above facts, the iodine in heptane.
   (1) Should precipitate.
   (2) Should be insoluble.
   (3) Should be soluble well.
   (4) Should be soluble slightly.

(25) The below shows four velocity - time graphs of motion of four competitors A, B, C, D in a running event. What is the velocity - time graph of the competitor who has gained a maximum velocity during the minimum period of time.

(1)

(2)

(3)

(4)
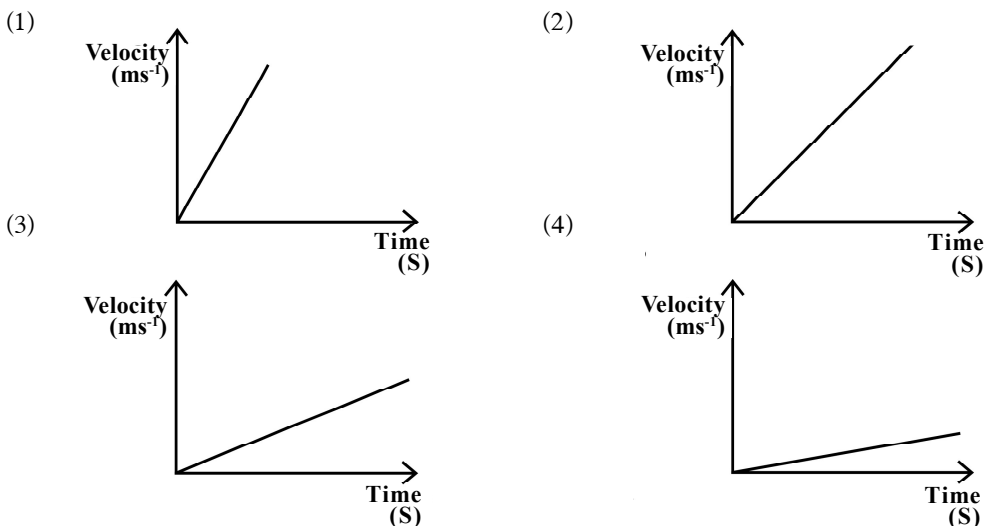
(26) What is the answer which shows a situation where a neutralization reaction takes place.
   (1) Dissolving soap in hard water.
   (2) Applying baking soda for the stings of hornets.
   (3) Giving a salt solution for a person who had drunk kerosene oil.
   (4) Giving milk of magnesia solution for a person who had mistakenly drunk an acid.

(27) As shown in the diagram below, a light weightd rod with weights are hanged and kept horizontally from the point A. The W and X values respectively are,
   (1) 10 N and 7 m
   (2) 7 N and 2 m
   (3) 6 N and 2 m
   (4) 3.3 N and 1.5 m
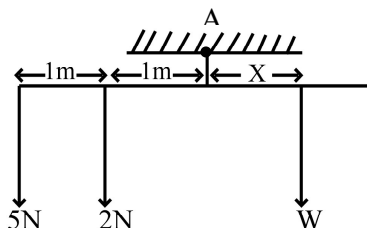
(28) As shown in the diagram a horizontal force of F is exerted on the wooden block gradually increasing from O. What is the correct statement regarding the frictional force exerted on the wooden block.
   (1) Acts along the direction of force and magnitude remains constant until the force increases.
   (2) Acts along the direction of force and magnitude changes from O to a certain constant value until the wooden block start to slide.
   (3) Acts opposite to the direction of force and the magnitude remains constant until the force increases.
   (4) Acts opposite to the direction of force and the magnitude change from O to a certian value until the wooden block start to slide.
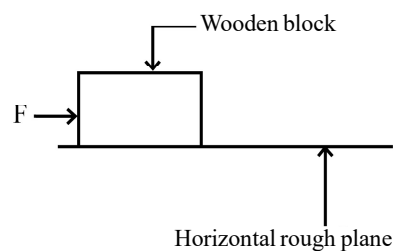
(29) A resistor, transistor, Diode and a capacitor are enclosed in four boxes separately so as to remain only their terminals outside. The component which can identify from the number of terminals only is,

(1) Resistor   (2) Diode

(3) Transistor   (4) Capacitor

(30) Which one out of the followings shows lowest resistivity in the conduction of electricity.

(1) Conductors of alloys   (2) Pure semi conductors.

(3) Pure conductors   (4) Super conductors

(31) What is the method that should be followed to get tall : short 3: 1 ratio from plants hybridized by pure bread tall and pure bred short plants.

(1) Mixing the hybridized plant (F_1) with pure bred tall plant.

(2) Self pollinate the hybridized plant (F_1)

(3) Cross pollinate the hybridized plant (F_1)

(4) Mixing the hybridized plant (F_1) with pure bred short plant.

(32) As shown in the diagram, a mercury column is trapped inside a glass tube with one end closed. If the atmospheric pressure is P_0, what is the statement which shows the pressure (P) of air inside the glass tube.

(1) $P_o - h_1 \rho g$ (The density of mercury is ρ

(2) $h_1 \rho g$

(3) $P_o + (h_2 - h_1) \rho g$

(4) $P_o + (h_1 - h_2) \rho g$
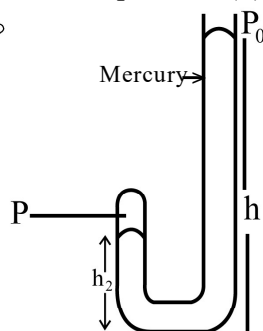
(33) 0.5g of, A pieces of zinc, B - Granuals of zinc, and C - powders of zinc were taken and reacted with excess amount of HCl acid. What is the correct graph which shows the emistion of H_2 gas against time.

(1)

(2)

(3)

(4)

(34) During the extraction of iron, the substances added to the blast furnace except iron ore is,

(1) Carbon, Calcium Carbonate, Air

(2) Calcium Carbonate, Calcium Silicate, Air

(3) Calcium Carbonate, Calcium aluminate, air

(4) Carbon, Calcium Carbonate, Calcium Silicate.

(35) A remote control works using.

(1) Infra- red rays (2) Micro waves

(3) Radio waves (4) Ultra sound

(36) Tbe measure to be taken to prevent from thalassemia disease is,

(1) Prevent the marriages between blood relatives.

(2) Immediately take medical treatments after identifying the disease.

(3) Take foods with more iron during the pregnancy period.

(4) Do a blood checkup before the marriage and prevent the marriages between two carriers.

(37) When identical coins of one rupee and two rupee were released from a same height on to the same cement floor in the same manner, the reason for the difference of sound produced is, both sounds have a

(1) Different pitch (2) Different loudness.

(3) Different amplitude (4) Different quality of sound

(38) If a transparent hole is made along the centre of the earth and a stone is released perpendicular to it, what happens is,

(1) Enters to the space from the other side.

(2) Finally stay remains in the centre by oscillating to both sides after passing the centre.

(3) Return back after passing the centre.

(4) Stay remain in the centre.

(39) The   specific that capacity of water is 4200 J kg^{-1} $^0C^{-1}$ and the specific heat capacity of copper is 460 J kg^{-1} $^0C^{-1}$ 1kg of water and 1 kg of copper at 100^0 C were put in to a large container which contains water at $30\ ^0$C. Finally the temperature became constant to $40\ ^0$C. For this increment of temperature,

(1) More heat was released by copper.

(2) More heat was released by hot water.

(3) More heat was released by copper and less heat was released by hot water.

(4) Copper and hot water released an equal amount of heat.

(40) Certain birds live in present cities make their nests near the places like lamp covers. The main reason for this would be,

(1) Food is abundant in houses.

(2) There is less effort to make nests.

(3) More chances to protect from predators.

(4) There is a cold temperature inside houses than outside.

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Provincial Department of Education – NWP

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දෙවන වාර පරීක්ෂණය - 11 ශ්‍රේණිය - 2019
Second Term Test - Grade 11 - 2019

Index No/Name: .... **Science - II** **Time: 03 hours**

Instructions for answering.

● **Use clean hand writing.**

● **Answer four questions in part A in the given space.**

● **Answer only three questions in part B out of 05 questions. Use separate papers to write answers.**

Part - A - Structured Eassay

(1) (A) The above diagram shows the cross section of a toy boat. A vessel with 02 chambers has fixed to the bottom and an overflow tube is connected to it. To operate the boat the vessel in the middle is shaked and allow to mix together.
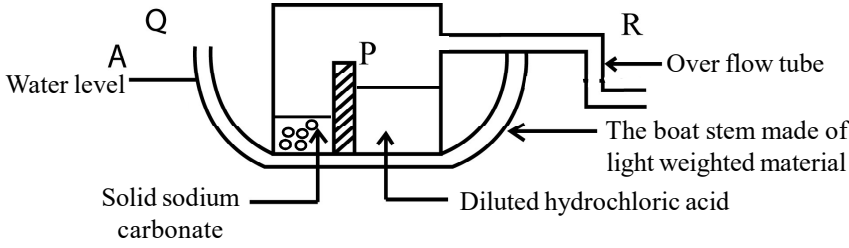
(i) The movement of the boat takes place along R to Q or Q to R direction?

.... (1 mark)

(ii) What is the law which relates to the movement of the boat?

.... (1 mark)

(iii) Write the formula of the solid sodium carbonate.

.... (1 mark)

(iv) Write the balanced chemical equation for the reaction between solid sodium carbonate and diluted Sulphuric acid.

.... (2 marks)

(v) What is the number of molecules present in two molecular moles of Sodium Carbonate.

....

.... (2 marks)

(vi) Draw the lewis dot diagram to show the nature of bonds in the gas which evolves when the boat is operating.

....

.... (2 marks)

(vii) What is the chemical substance use to identify this gas in the laboratory.

.... (1 mark)

(viii) How the gas is identified using this method?

....

....(2 marks)

(B) (i) It was observed that the speed of the motion of boat decreases gradually some time after operating the boat. State a change that can be done to the boat to increase the speed of motion without increasing the amount of chemicals.

.... (1 mark)

(ii) Write two factors that should be considered when preparing the boat to prevent it sinking and prevent the boat to be inclined.

.... (2 marks)

(15 marks)

(02) (A) Following is a diagram to show how tissue fluid is formed.

(i) Write a function of tissue fluid.

....(1 mark)

(ii) Write 02 differences between the composition of blood plasma and tissue fluid.

Tissue fluid   Blood plasma

....   (2 marks)

(iii) What is the name given to the tissue fluid after entering into the vessel x

....(1 mark)

(B) Human lymphatic system is made up of lymphatic vessels.

(i) Name two main lymphatic vessels of the human body.

....

.... (2 marks)

(ii)   Name a places of the body where lymphatic glands present.

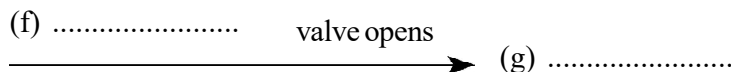.. (1 mark)

(iii)   Which action is important to circulate lymphatic fluid through out the lymphatic vessels.

....(1 mark)

(C)   Fill the blanks of the flow chart relevant to the double circulatory system of human using the words given in the brackets.

(Lungs, Tricuspid valve, bi - cuspid value, Inferior vena cava, pulmonary, systemic, semi lunar valve, left ventricle, heart)

(i)

with less O_2 more CO_2 } Blood $\xrightarrow{\text{superior vena cava} \atop \text{a) ....}}$ Relaxation of right atrium $\xrightarrow{\text{Blood}}$ Right atrium

$\longrightarrow$ contraction of right atrium $\xrightarrow{\text{(b) .... valve opens}}$ Right ventricle

(c) .... $\xrightarrow{\text{valve opens}}$ (d) .... Artery $\longrightarrow$ (e) ....

$\longrightarrow$ Pulmonary veins $\longrightarrow$ Relaxation of left atrium $\longrightarrow$ Left atrium $\longrightarrow$

(f) .... $\xrightarrow{\text{valve opens}}$ (g) ....

$\xrightarrow{\text{Semilunar valve opens}}$ (h) .... artery   (4 marks)
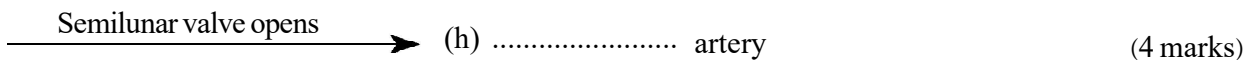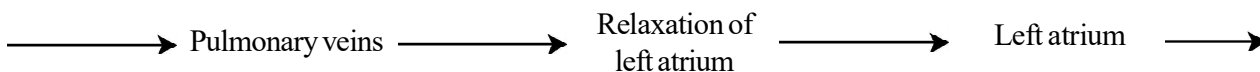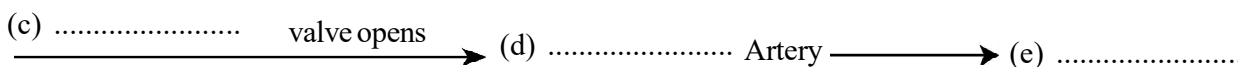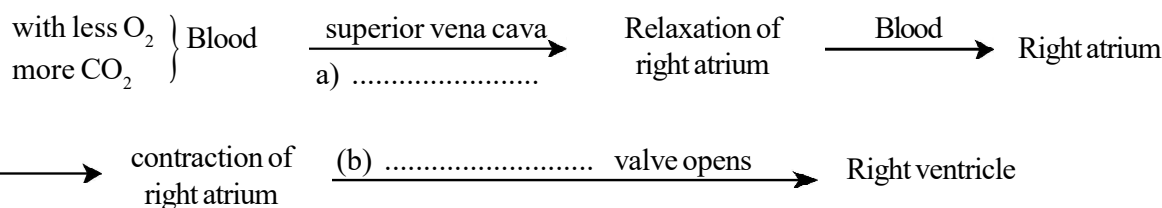
(ii)   The functioning of the human heart is done by heart muscles. Name 02 another muscle tissues of human except this.

1. ....

2. .... (2 marks)

(iii)   Name another group of vertebrate with a four chambered heart as human.

.... (1 mark)

(15 marks)

(03) (A) The following table shows the information of some elements. (Write the answers using the above symbols.)

(i) Fill the blanks given.

	P	Q	R	S
Mass number	12	21	....	13
Number of electrons	....	10	17	06
Atomic number	06	10	17	06
Number of neutrons	06	....	18	07

(3 marks)

(ii) What is the letter which indicates a nobel gas.

....(1 mark)

(iii) What are the two elements with highest and lowest electro negativities.

(1) Lowest ....

(2) Highest ....   (2 marks)

(iv) Write the formula of the compound formed by reacting hydrogen and R .

....(1 mark)

(v) What is the type of bonds of that compound.

....(1 mark)

(B) The temperature was measured before and after the reaction.

Thermometer

Diluted HCl 50cm^3
+
NaOH$_{(s)}$ 5g
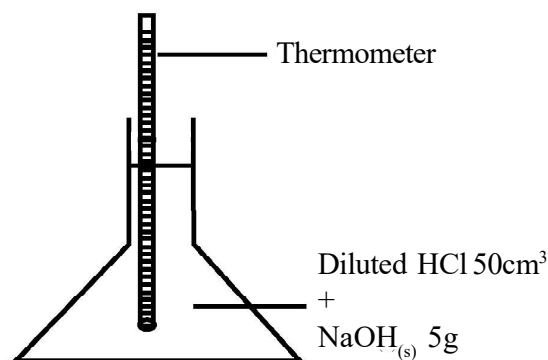
(i) Sate the difference in the temperature before and after the reaction.

.... (1 mark)

(ii) Write the balanced chemical equation relavent to the above reaction.

.... (1 mark)

(iii) What is the number of moles of NaOH used in the reaction.

(Na = 23, H = 1, O = 16)

.... (2 marks)
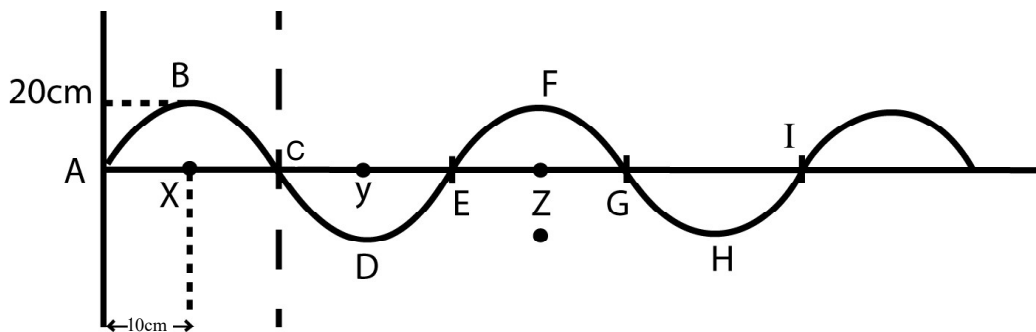
(iv) Complete the energy diagram relavent to this reaction. (1 mark)
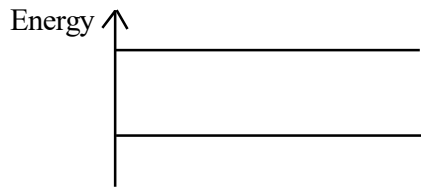
(v) Write two assumptions used in this experiment to calculate the heat change relavent to the above reaction.

.... (1 mark)

.... (1 mark)

(Total 15 marks)

(04) (A) Following is a diagram of a wave produced when a pebble was thrown into a pond with water.

(i) State the type of wave this belongs.

....(1 mark)

(ii) What is the amplitude of this wave.

....(1 mark)

(iii) What is the distance of the wave length?

....(1 mark)

(iv) What is the main difference between this wave and a wave produced by a tuning fork.

....(1 mark)

(v) As which type of waves, the heat and light energy from the sun transmit to the earth.

....(1 mark)

ϱ
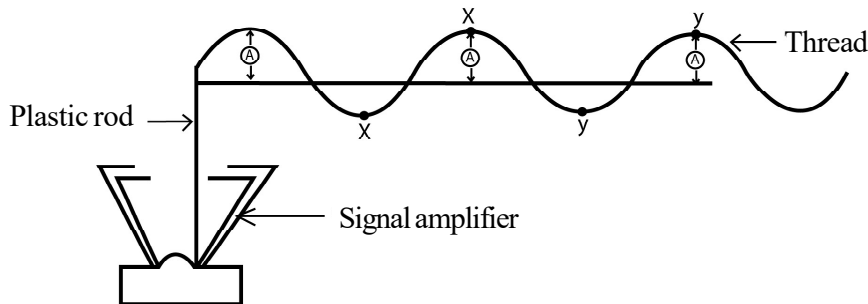
As shown in the diagram, when the signal amplifier is turned on, the thread is arranged as the above.

(vi)   What will happen to the xy length, when the frequency is increased by the signal amplifier.

....(1 mark)

(vii) What will happen to the height A, when thread is tight.

....(1 mark)

(viii) If the frequency of the signal generator is 250 Hz, What is the value of a period?

....(2 marks)

(B)
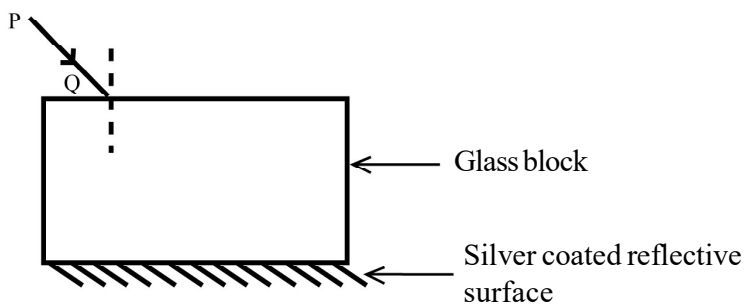
(i)   Draw the path of PQ monochrome ray of light after incident on glass block.   (2 marks)

(ii)   Indicate refractive ray as AB and the angle of refraction as y in your diagram.

.... (2 marks)

(iii) Define refractive index.

.... (1 mark)

(iv)   State the reason for not emitting light to the outside before the end of fibre, when a light ray transmit through an optical fibre.

....(1 mark)

(Total 15 marks)

Part B - Essay

(05) (A) Organic and inorganic compounds are participated to from the living body.

(i) Name 02 inorganic compounds other than water which make the living matter. (1 mark)

(ii) There are specific properties of water which maintain the life. Write a specific property of water relavent to each of the following processes.

   (a) Respiration of aquatic organisms.

   (b) Regulate body temperature.

   (c) Transport water upwards along the stems of tall plants. (3 marks)

(iii) What is the most abundant bio - molecule found in living bodies. (1 mark)

(iv) Following is an experiment done to identify the activity of a substance used to increase the rate of bio - chemical reaction in living bodies.

a
Boiled potato
+ Iodine solution

b
Boiled potato
+ Benedict solution
Heat

c
Boiled potato
+ Amylase solution
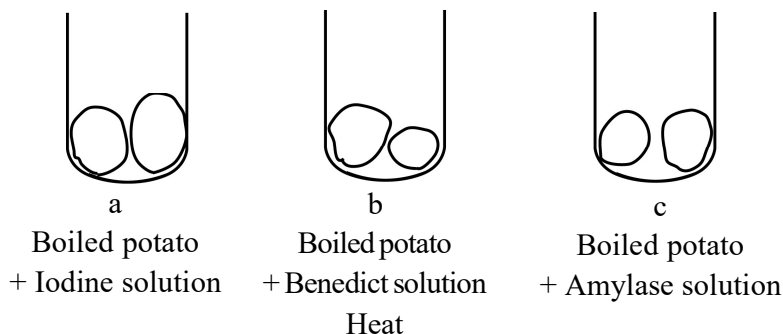
   (a) Write the colour change in a and b tubes according to the order. (1 mark)

   (b) Explain the reason for each of the colour changes. (1 mark)

   (c) Write the colour change occur when iodine solution was added to the test tube c after 15 minutes. (1 mark)

   (d) State the reason for the colour change with a word equation. (1 mark)

   (e) Write the name of another substance that can use insted of amylase. (1 mark)

   (f) The enzymes are belonged to which bio - molecules? (1 mark)

(B) The organelles are the small structures contained in cells which perform different functions.

(i) What is known as a typical cell. (2 marks)

(ii) Write the names of the organelles/ structures which perform the following functions. (1 mark)

   (a) Transport proteins.

   (b) Maintain the water balance.

   (c) Acts as a semi permeable membrane. (3 marks)

(iii) What is the main differences between the growth and development of a cell. (2 marks)

(iv) If a specimen should be prepared to study the information of an animal cell, write the steps of an activity which is done for this. (2 marks)

(Total 20 marks)

(06) (A) The matter is made up of elements. The building units of then are atoms.

(i) What are the sub atomic particles which build up the atoms. (1 mark)

(ii) Tabulate the charge of these sub atomic particles and their locations in the atom. (4 marks)

(iii) Indicate the arrangement of subatomic particles of neon atom by using an energy level diagram. (1 mark)

(iv) Atoms make bonds to become stable. Illustrate the nature of bonds of ammonia molecule by a diagram. (2 marks)

(v) Calculate the molar mass of Calcium chloride. (1 mark)
   (Ca = 40, Cl = 35.5)

(B) Equal pieces of Na, Cu, Fe, Zn, Al, Mg were taken and engaged in the following activity.
   (a)   Put into hot water.

   (b)   Put into cold water.

   (c)   Put into a test tube with diluted HCl acid.

(i)   If the teacher is advised to do only one activity for a certain metal, name that metal. Write the reason

(2 marks)

(ii)   Write 02 observations when Mg is put into diluted HCl acid.   (2 marks)

(iii) Although Al is a reactive metal, it doesn't react with oxygen contineously. what is the reason?

(1 mark)

(iv) Arrange the above metals according to the order of their reactivity.   (1 mark)

(v)   What is the reason for obtaining equal pieces of metals in this reaction.   (1 mark)

(C) After the above experiment a student introduced a piece of zinc into a copper sulphate solution and observed the reaction.

(i)   What observations can be obtained during the reaction.   (2 marks)

(ii) What are the observation that can be taken when a piece of copper is added to a zinc sulphate solution.   (1 mark)

(iii) Sate a conclusion that can be arrived based on the observation of two reactions.   (1 mark)

(Total 20 marks)

(07) (A) Thermometers are used to state the temperature numerically.

   (i)   (a)   Ability to measure a broad range of temperature.

         (b)   Ability to measure the temperature less than O ^{0}C.

   Name the thermometers which can be used for the above purposes respectively.   (2 marks)

   (ii) What are the liquids contained in those thermometers.   (2 marks)

   (iii) What are the scales used to measure temperature.   (2 marks)

   (iv) What ate the fixed points used when preparing scales for thermometers.   (2 marks)

   (v)   Explain what is meant by absolute zero temperature.   (2 marks)

   (vi) Write the standard unit of measuring temperature and it's symbol.   (1 mark)

   (B)

   (i)   Define what is known as specific heat capacity of a substance.   (1 mark)
         Following is a diagram of apparatus used to investigate the factors that affect heat capacity of an object.

Water (50g) (a)   Coconut oil (50g) (b)   Water (100g) (c)   Thermometer

Supply equal amount of heat
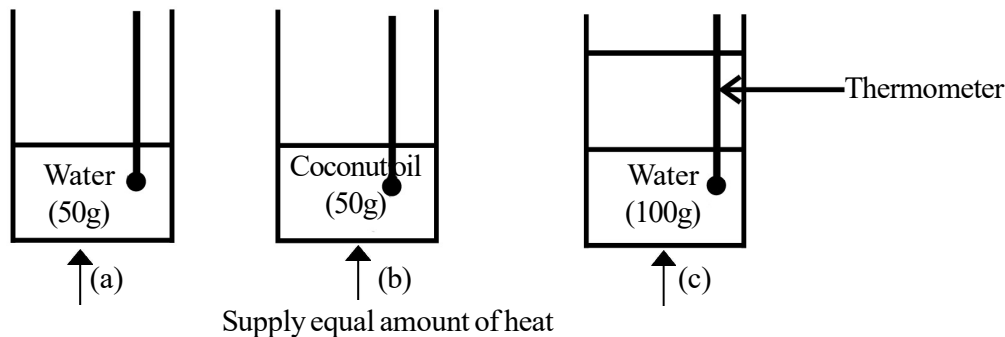
   (ii) If equal amount heat is supplied to the liquids present in three beakers what can say about the temperature reading of thermometers in a, b and c beakers.   (1 mark)

(iii) Depending on the above observations name the two factors that affect heat capacity. (2 marks)

(iv) What is the unit of heat capacity. (1 mark)

(v) A 1kg of water is contained in a copper vessel. The mass of the vessel with water is 1.5 kg calculate the amount of heat required to heat the water at 20 ^{0}C until it boils.

(Specific heat capacity of copper 400 J kg^{-1} ^{0}C^{-1} , Specific heat capacity of water 4200 J kg^{-1} ^{0}C^{-1})

(2 marks)

(vi) State a hypothesis used in the above calculations. (1 mark)

(C)
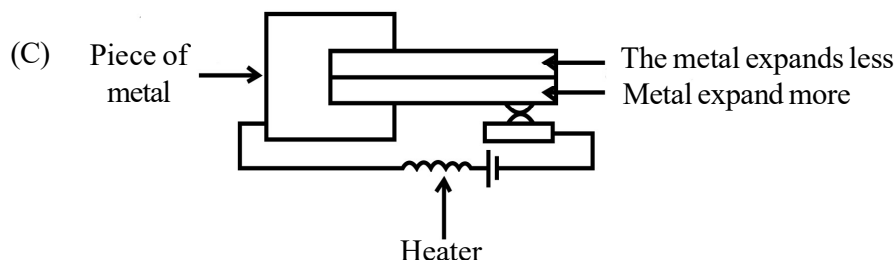
Indicate with a labeled diagram of the change that takes place in the bimetallic strip when the switch is closed, of the above apparatus prepared to study the expansion of a solid (1 mark)

(Total 20 marks)

(08) (A) Three domain system of classification is using at present to classify organisms.

(i) Who introduced the three domain classification system? (1 mark)

(ii) Name two domains of organisms with organisms abscence of organized nucleus. (2 marks)

(iii) Write two common features that can be seen among animals. (2 marks)

(iv) What are phylla of organisms with only marine animals out of the Cnidaria, Annelida, Echinodermata and Molluca. (1 mark)

(v) The features of a certain animal are as follows,

* Triploblastic

* Coelem is present

* Live in the environments like land, ocean and fresh water.

What is the phylum of organism which has the above features. (1 mark)

(vi) Name an animal belong to the phyllum of the organisms who haven't a brain, heart and eyes.

(1 mark)

(vii) Name two institutions which regulate the methodology of naming of an organism. (2 marks)

(viii) Write two standards used in binomial nomenclature. (2 marks)

(B)

(i) Express the power of an electrical instrument by an equation. (1 mark)

(ii) Write the unit of power and it's symbol. (1 mark)

(iii) It is indicated as 1000 W and 230 V on the outside of an electric oven. What is the amount of current obtained by the oven when it is working. (2 marks)

(iv) The power of a head lamp of a vehicle is 50W. What is the amount of electric energy consumed when it is lighting for 2 hours. (2 marks)

(v) Why microwave ovens are more efficient when cooking foods? (2 marks)

(Total 20 marks)

(09) (A) Three methods of preparing solutions are as follows.

- Dissolve 5g of NaOH in water and prepare a solution with total volume 250 cm^3
- Dissolves 0.5 mol of NaCl in water and prepare a solution with the total volume of 1 dm^3.
- Prepare a glucose solution of 100g with the mass fraction of 0.2.

(i) What is the mass of solution which contains 80g of glucose in the above glucose solution. (1 mark)

(ii) Express the composition of the prepared NaOH solution as per m/v (1 mark)

(iii) What is the amount of grams of NaCl required to prepare 0.5 mol dm^{-3} NaCl Solution

(Na = 23, Cl = 35.5) (2 marks)

	Solubility at 20 ^{0}C (g)		
Solvent (100 g)	Salt	Sugar	Iodine
Water	36	204	0.03
Ethy alcohol	0	0	20
Trichloro ethane	0	0	3

The solubility of three solvents at 20^{0}C is shown above.

(iv) What is the solubility of sugar in water. (1 mark)

(v) If this indicates the data of an experiment to find the factors that affect solubility, what are the factors that affect solubility which is identified through the activity. (1 mark)

(vi) Write a change that can be done to increase the solubility of iodine in water further. (1 mark)

(vii) When preparing acid solutions, the dilutions should be done.
What is the main factor that should be considered when diluting an acid with water. (1 mark)

(viii) Three solutions of acid, base and salt are in test tubes without labels. Name 03 laboratory indicators that can be used to identify them. (2 marks)
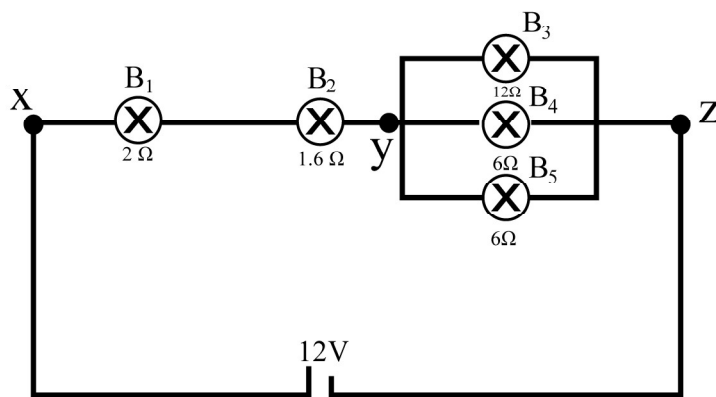
(B) An object which was at rest taken 05 seconds to fall down vertically and reach to the ground.
(g = 10ms^{-2})

(i) What is the velocity of the object when it touches the ground. (1 mark)

(ii) From which height, the object was fallen to the earth? (2 marks)

(C) As shown in the diagram below five bulbs are conneted to 12 V battery.

(i) Out of the above which bulbs conduct highest and lowest current. (2 marks)

(ii) Find the equivalent resistance between x and y. (2 marks)

(iii) What is the total current provided by the battery to the circuit. (2 marks)

(iv) If B$_4$, B$_5$ bulbs got burned, What will be the change in the brightness of B$_1$ and B$_2$ bulbs.(1 mark)

(Total 20 marks)

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Provincial Department of Education – NWP

| 34 | E | I, II |

දෙවන වාර පරීක්ෂණය - 11 ශ්‍රේණිය - 2019
## Second Term Test - Grade 11 - 2019
Science - Answer

Paper - I

(1)	-	3	(11)	-	3	(21)	-	1	(31) - 2
(2)	-	3	(12)	-	1	(22)	-	3	(32) - 4
(3)	-	1	(13)	-	4	(23)	-	3	(33) - 3
(4)	-	2	(14)	-	3	(24)	-	3	(34) - 1
(5)	-	3	(15)	-	3	(25)	-	1	(35) - 1
(6)	-	1	(16)	-	1	(26)	-	4	(36) - 4
(7)	-	3	(17)	-	3	(27)	-	3	(37) - 1
(8)	-	3	(18)	-	2	(28)	-	4	(38) - 2
(9)	-	1	(19)	-	2	(29)	-	3	(39) - 2
(10)	-	1	(20)	-	2	(30)	-	4	(40) - 3

Paper - II

(1 x 40 = 40marks)

(1)	(A)	(i)	R to Q	01m
		(ii)	Newton's third law.	01m
		(iii)	$Na_2CO_{3(s)}$ or Na_2CO_3 solid	01m
		(iv)	$Na_2CO_3 + 2HCl \longrightarrow 2NaCl + H_2O + CO_2$	02m
		(v)	$2 \times 6.022 \times 10^{23}$ 12.044×10^{23} or 1.2044×10^{24}	02m
		(vi)	$\ddot{O}:C:\ddot{O}$.	01m
		(vii)	$Ca(OH)_2$	02m
		(viii)	For a correct answer	02m
	(B)	(i)	Making the tube thin . Use light weighted materials to make the boat.	01m
			Decreasing the weight of the boat / Increase the volume of boat stem	02m
			Total marks	15
(2)	(A)	(i)	Acts as a medium to exchange the substances between cells and blood / provide internal environment around cells.	01m
		(ii)	There are no plasma proteins in tissue fluid. Blood plasma contains plasma proteins.	02m
		(iii)	Lymphatic fluid.	01m
	(B)	(i)	Thorasic dust Right lymphatic duct.	02m
		(ii)	Liver / Heart/ around intestine / skin / armpits, throat / groin area.	01m
		(iii)	Pressure created by muscle contraction / suction created by inspiration and expiration.	01m
	(C)	(i)	(a) Inferior vena cava. (b) Tricuspid valve (c) Semi- lunar valve (d) Pulmonary artery. (e) Lungs (f) Bi - cuspid valve (g) Left ventricle (h) Aorta	04m

		(ii)	Smooth muscles Skeletal muscles	02m
		(iii)	Birds / Aves	01m
			Total marks	**15**
(3)	(A)	(i)	P - 6 , Q - 11, R - 35	03m
		(ii)	Q	01m
		(iii)	Lowest - P or S Highest - R	02m
		(iv)	HR	01m
		(v)	Covalent bond	01m
	(B)	(i)	Temperature before the reaction is low. Temperature after the reaction is high	01m
		(ii)	$NaOH + HCl \longrightarrow NaCl + H_2O$	01m
		(iii)	R. Molecular = 23 x 1 + 16 x 1 + 1 x 1 $\qquad$ = 23 + 16 + 1 $\qquad$ = 40 $\qquad$ m = 40 g mol^{-1} $\qquad$ n = $\frac{m}{M}$ $\qquad$ n = $\frac{5}{40}$ $\qquad$ = 0.125 mol	01m 01m
		(iv)	Energy ↑ Reactants $NaOH + HCl$ Products ↓ $NaCl + H_2O$	01m
		(v)	Two suitable answers $\qquad$ 02m	
			Total marks $\qquad$ **15**	
(4)	(A)	(i)	Mechanical waves / Transverse waves $\qquad$ 01m	
		(ii)	$\frac{20}{100} = \frac{2}{10} = \underline{\underline{0.2 \text{ m}}}$ $\qquad$ 01m	
		(iii)	$\frac{40}{100} = \frac{4}{10} = \underline{\underline{0.4 \text{ m}}}$ $\left(\frac{10 \times 4m}{100} \right)$	01m
		(iv)	In water waves, the particles vibrate perpendicular to the direction of wave, In a wave produced by a tunning frok, the particles vibrate along the direction of wave.	01m
		(v)	As electromagnetic waves.	01m
		(vi)	X Y length decreases	01m
		(vii)	Decreases $\quad$ $250 = \frac{1}{T}$ $\qquad$ $T = \frac{1}{250}$ S	01m 01m
	(B)	(i) (ii)		02m 02m
		(iii)	n = $\frac{Sini}{Sinr}$ $\qquad$ or correct answer	01m
		(iv)	The incident angle in glass is greater than the critical angle between glass and air.	01m

			Part - B	
(5)	(A)	(i)	For two correct answers	01m
		(ii)	(a) Solvent property	01m
			(b) High specific heat capacity / coolant property.	01m
			(c) Cohessive and adhessive forces.	01m
		(iii)	Carbohydrate	01m
		(iv)	(a) Purplish blue / Brick red	01m
			(b) Presence of starch / presence of simple sugar (glucose)	01m
			(c) Decrease the purple colour / Turns yellowish brown	01m
			(d) Starch $\xrightarrow{\text{Amylase}}$ Maltose	01m
			(e) extract of germinating seeds/ Saliva	01m
			(f) Protein	01m
	(B)	(i)	The cell prepared by including all the organelles	02m
		(ii)	(a) Rough endoplasmic reticulum.	01m
			(b) Vacuole	01m
			(c) Plasma membrane	01m
		(iii)	Cell growth - Irriversible increase in (amount of cells / dry mass / mass) cell development - increasing the complexity of cells	02m
		(iv)	• Obtain cheek cells and placed on to a glass slide.	01m
			• Add a water drop to the glass slide.	
			• Cover with a cover slip without entering air bubbles.	01m
			Total marks	**20**
(6)	(A)	(i)	Proton, electron, neutron	01m
		(ii)	If the charges are correct	02m
				02m
		(iii)		01m
		(iv)	$H-\underset{\underset{H}{\mid}}{\overset{\overset{H}{\mid}}{N}}:$ or correct answer	02m
		(v)	Relative molecular mass = 40 x 2 + 35.5 x 2 = 80 + 71 = 151 M = 151g mol^{-1}	01m
	(B)	(i)	Na	02m
		(ii)	Emision of gas bubbles/ Dissolving mg piece / Heating test tube.	02m
		(iii)	Forming an oxide layer	01m
		(iv)	Na, Mg, Al, Zn, Fe	01m
		(v)	To equals the surface area / physical nature remains un changed.	01m
	(C)	(i)	Decrease the blue colour of the solution. Formation of a brownish powder Dissolving zinc	02m
		(ii)	Doesn't change	01m
		(iii)	Zn, Cu more reactive than Cu Zn, displaces Cu from $CuSO_4$ solution	01m
			Total marks	**20**
(7)	(A)	(i)	Glass - metcury thermometer / Glass - alcohol thermometer	02m
		(ii)	Mercury, Alcohol	02m
		(iii)	Celcius scale Kelvin scale Fahrenheit scale	02m
		(iv)	Upper fixed point/ Lower fixed point.	02m
		(v)	Minimum temperature that an object can reach.	02m
		(vi)	Kelvin - K	01m

	(B)	(i)	The amount of heat required to increase the temperature of 1kg of a body 1k	01m
		(ii)	Answer like - not taking an equal value.	01m
		(iii)	Mass / Type of material	02m
		(iv)	$5JK^{-1}$ or $5J^0C^{-1}$	01m
		(v)	$Q = mc\theta$ Heat obtained by water $=1Kg \times 4200\ JKg^{-1}\ C^{o-1} \times 80C^o$ Heat obtained by copper $=0.5kg \times 400\ JKg^{-1}\ C^{o-1} \times 80C^o$ Total heat$=336000\ J +16000\ J$ $=352000J$ Heat obtained by water $=1Kg \times 4200\ JKg^{-1}\ C^{o-1} \times 80C^o$ Heat obtained by copper $=0.5kg \times 400\ JKg^{-1}\ C^{o-1} \times 80C^o$ Total heat $= 336000\ J +16000\ J$ $= 352000J$	01m 01m
		(vi)	Answer such as - neglecting the heat lost For a correct diagram	01m 01m
			Total marks	**20**
(8)	(A)	(i)	Carl woese	01m
		(ii)	Archea and bacteria	02m
		(iii)	Two features such as multicellular / heterotrophic	02m
		(iv)	Echinodermata	01m
		(v)	Annelida	01m
		(vi)	Echinodermata	01m
		(vii)	ICBN / ICZN	02m
		(viii)	Two relavent standards	02m
	(B)	(i)	Relavent equation	01m
		(ii)	Watt / Joules per second W / JS^{-1}	01m
		(iii)	$P = VI / 1000 = 230 \times I / I = \dfrac{1000}{230}\ A$	02m
		(iv)	$E = Pt / 50 \times 3600\ J / 180,000\ J$	02m
		(v)	Heat is obtained within the food.	02m
			Total marks	**20**
(9)	(A)	(i)	400g	01m
		(ii)	composition - $m/v = \dfrac{5g}{250\ cm^3} \times 1000\ cm^3 dm^{-3}$	01m
		(iii)	Molar mass of NaCl $=23+35.5 = 58.5$ $M=58.5gmol^{-1}$ $n = \dfrac{m}{M}$ $0.5 = \dfrac{m}{58.5}$ $m =58.5 \times \frac{1}{2}$ $m =29.25g$	01m 01m
		(iv)	204g	01m
		(v)	Nature of solvent Nature of solute	01m
		(vi)	Increasing the temperature	01m
		(vii)	Add acid to water	01m
		(viii)	Litmus/Phenolphthalein/P^H papers/Methyl orange- for 03 indicators	02m
	(B)	(i)	$10ms^{-1} \times 5 = 50ms^{-1}$	01m
		(ii)	For correct calculation (125m)	02m
	(C)	(i)	Highest B_1, lowest B_2	02m
		(ii)	$R = R_1 + R_2$ $= 2\Omega + 1.6\Omega$ $= 3.6\Omega$	02m
		(iii)	Sum of the parallel resistors $= 2.4\Omega$ Total equivalent resistance $=1.6\Omega + 2\Omega +2.4\Omega$ $= 6\Omega$ $V=IR$ $12=I \times 6$ $I=2A$	01m 01m
		(iv)	Brightness decreases	01m
			Total marks	**20**