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சபரகமுவ மாகாண கல்வித் திணைக்களம்
Sabaragamuwa Provincial Department of Education

පළමු වාර පරීක්ෂණය 2018
 முதலாம் தவணைப் பரீட்சை 2018
 First Term Test – 2018

11 ශ්‍රේණිය
 தரம் - 11
 Grade - 11

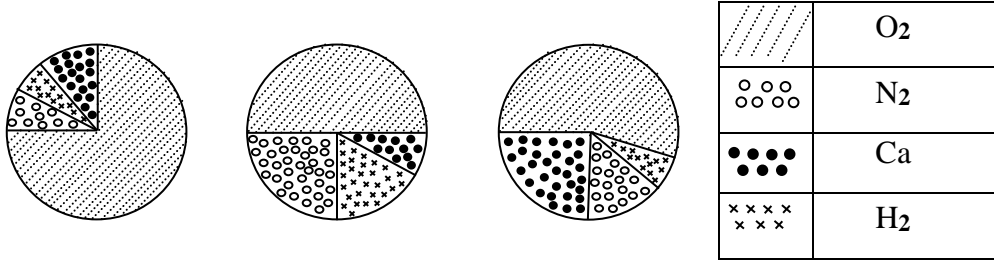
විද්‍යාව II
 விஞ்ஞானம் II
 Science II

පැය තුනයි
 3 மணித்தியாலம்
 3 Hours

Part A

■ Answer all the questions.

01. (A) Elements are important in the formation of the plant body, the followings are some result of an analyzing of the quantity of the elements in 3 types of plants,



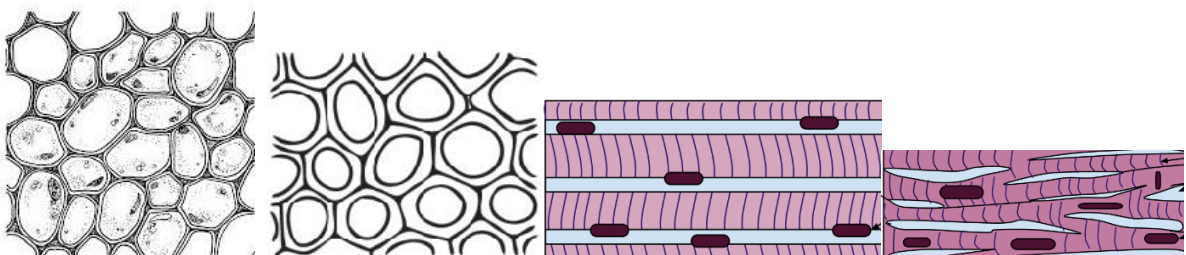
(i) What is the element that which has contributed a lot in making the plants body?

(ii) Which plant has the highest carbon percentage?

(iii) Which plant will be able to live in a soil lack of Nitrogen?

(iv) What are the element needed to produce proteins in plants expect C and H.

(B) The following 4 tissues are seen in plants and animal bodies.



P

Q

R

S

(i) Mention the plant tissues and animal tissues shown above separately.

Plant tissues	Animal Tissues

(ii) Which tissue is multi – nucleus?

.....

(iii) Which tissue contains dead cells?

.....

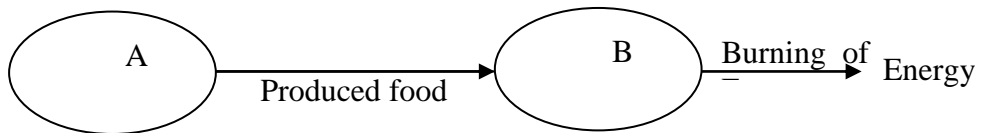
(iv) Which tissue or tissues are adapted to store food?

.....

(v) Write the tissue with an involuntary action.

.....

(C) The activities of a cell is equal to the set of activities of a factory.



(i) Identify the A and B organelles.

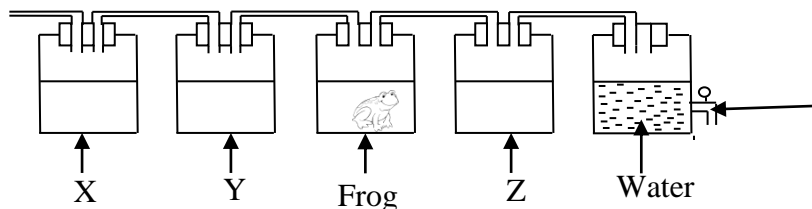
A

B

(ii) Write one by product of the combustion instead of energy.

.....

02. The following investigation was done by some students to study the respiratory process of living Organisms.



- (A) (i) What is the gas released in the above process.

 (ii) Write the name of the chemical that used to identify that gas.

 (iii) Where at the above set up out of X, Y and Z use the chemical you mentioned in (ii)

 (iv) There is a mistake that has been done when fixing delivery tubes to the setup. Make the correction on the diagram itself.

(B) The following list has been done by observing the animal in the home garden yard by a students.

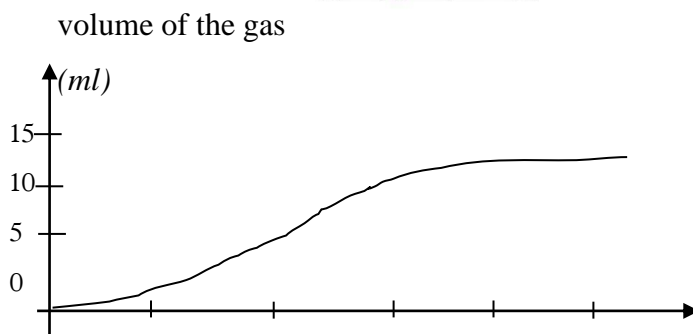
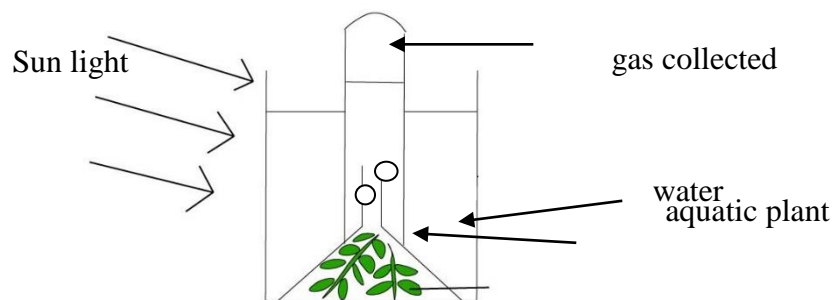
Gecko, cockroach, rat, sparrow, cat, snail, snake.

- (i) Classify above animals as vertebrates and invertebrates? (M2)

 (ii) Write the name of animals which the body temperature doesn't change with the environmental temperature?

 (iii) Which of the above animals belong to the phylum –Arthropod (M-1)

(C) The following diagram depicts a set up that made to test about an aquatic plant, and the graph shown below shows the volume of the gas released with the time.



8 a.m. 10 a.m. 12 a.m. 2 p.m. 4 p.m. Time

(i) During which of the process of plant that the above gas is released?

.....

(ii) Write the time period that the above reaction taken place at the fastest rate?

.....

.....

(iii) Write one environmental factor which effects on the rate of the above reaction.

.....

(iv) The above gas should be produced in the lab. Write a chemical that gives the above gas when heating?

.....

03. (A) The following table gives information related to the experiment which has been done to study the activities of some elements.

Element	Colour	Reaction with acids	Reaction
A	Brown	React slowly releasing air bubbles	No reaction with cold water and hot water.
B	Bright - grey	Reacts vigorously by releasing bubbles.	Reacts vigorously
C	Grey colour	React fast emitting bubbles.	No reaction with cold water and react with hot water.
D	Yellow	No reaction	No reaction
E	Black	No reaction	No reaction

(A) (i) Select the non-metals out of above elements.

.....

(ii) Arrange the metals in the table to the ascending order of the reactivity.

.....

(iii) Which of the above metal cannot be used to make a container to store water

.....

.....

.....

(B) The following information were found by a student about the element Bromine.

The group number = vii

The period = 4

(i) What is the number of electrons at the last shell of an atom of bromine?

.....

(ii) Write the formula of the compound made by bromine with hydrogen.

.....

(iii) What is the state of bromine at the room temperature out of solid, liquid or gas?

.....

(C) The gas O_2 reacts with the gas H_2 and make water

(i) What type of reaction it is?

.....

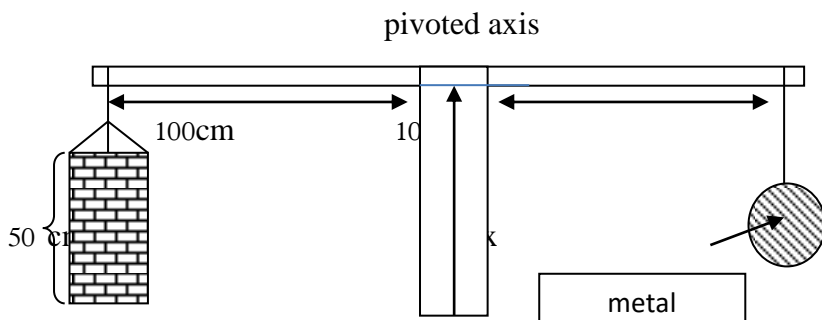
(ii) Write the balanced chemical equation for the above reaction?

.....

(iii) Draw the dot-cross diagram of the water molecule.

.....

04.



(A)

The below rod has been balanced using a bucket full of a liquid to one side and a piece of metal to the other side.

(i) If the weight of the bucket is 18000N

(a) Is the weight of X is less than 18000 N or more than 18000 N.

.....

(b) What is the mass of X ?

.....
(c) If the bucket is heavily leakage explain what would happen to the equilibrium of the system,
.....

(ii) If the density of the liquid is 900 kg m^{-3} find the pressure excited at the bottom of the bucket, ($g = 10 \text{ m s}^{-2}$)
.....

(iii) Find the moment of force excreted by the bucket and the liquid.
.....
.....

(iv) If you want to adopt the above set up to take water from a well what modification should be done to the above set up?
.....
.....

(B) A match stick can be burnt by focusing the light by a hand lens.

(i) Which type of lens is used to make a hand lens?
.....

(ii) What is the position which the match stick should be kept to burn it. Using lens.
.....

(iii) What would be the object for the lens of the time of burning the stick as mentioned above.
.....

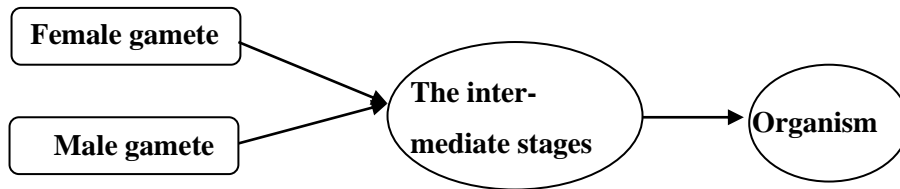
(iv) Draw the correct ray diagram for the above incident using a hand lens.

(v) A mirror can be used to burn a match stick as mentioned earlier. What type of a mirror should be used?
.....

Part – B

Answer for 3 questions only.

01. (A) Higher organisms usually produce their off springs by the sexual reproduction.



- (i) What is the name of the male gamete of humans? **(01 mark)**
- (ii) What is the name of the male gamete of plant? **(01 mark)**
- (iii) Name 2 intermediate stages as shown as x in the diagram when making the human embryo. **(03 mark)**
- (IV). What is the difference in the number of chromosomes in the gametes and the stage X?

(B)The gene h, which is responsible for the occurrence of hemophilia is segregated along with the sex chromosome x.

- (i) What are the main symptoms of the hemophilia?
- (ii) What would be the genotype of the mother of a child which has X^hY genotype?

(C) Vitamin C and Iron tablets are given to school children but it is said that some students throw them away.

- (i) Which is the iron deficiency disease in human?
- (ii) Write one visible symptom in plants due to lack of iron.
- (iii) The vitamin C is important to protect an important structure in the body. What is it?

(D) *Felis domestica* is the scientific name of the domestic cat.

- (i) What is the genus that the cat belongs to?
- (ii) Write 2 special characteristics of the skin of animal which is in the same group with cats. **(02 mark)**
- (iii) Write the correct scientific name of the cat using your hand writing. **(02 mark)**
- (iv) The whale also comes under the group of animals which the cat belongs to. Write one similarity of both of them. **(01 mark)**

02. (A) The main components of the urea fertilizer is CO₂ and ammonia,

(i) The following reaction is the chemical reaction takes place in Ammonia production.



(a) Write the balanced chemical equation for the ammonia production. (02 marks)

(b) Name the sphere which the gas nitrogen is available in larger quantities.

(02 marks)

(ii) The chemical formula of urea is CO(NH₂)₂ calculate the mass of urea in one mole of Urea.

(C = 12 , O = 16 , N = 14 , H = 1)

(iii) Name a source of CO₂ in Sri Lanka if the urea production is started here. (01 mark)

(B) The following instances are the instances where the separation methods are used.

(a) Refining of crude oil.

(b) Extraction of iron from iron ores.

(c) Obtain cinnamon oil out of cinnamon leaves.

(d) Producing sugar from sugar cane.

(e) Extraction of gold from gold ores.

(i) Which of the above need a chemical method for separation. (02 mark)

(ii) Which of the above incident use the steam distillation. (02 mark)

(iii) Which method uses the difference of the boiling points of the components? (02 mark)

(iv) Which separation method is used when the sugar in (d) is mixed with sand. (02 mark)

(v) What is the reason to find gold before the iron by people? (02 mark)

(C) Some of chemical elements are shown in the following periodic table but the those are not the correct symbols.

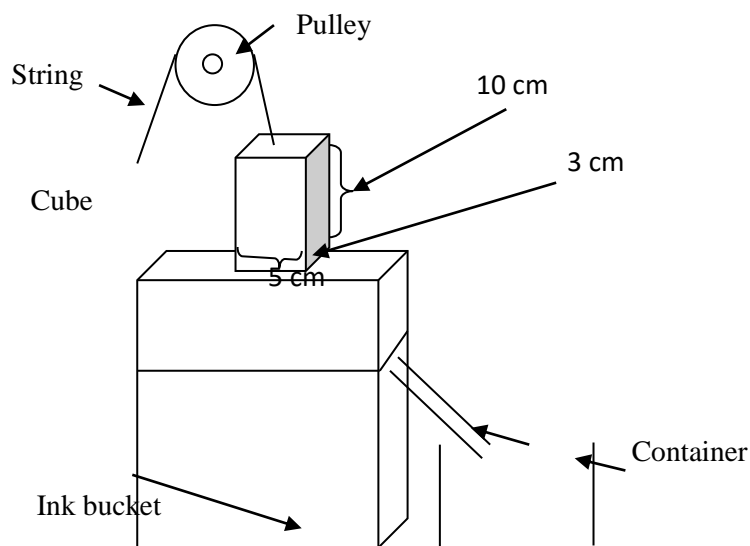
I	II	III	IV	V	VI	VII	VIII
							G
			D	E			H
	B	C			F		I
A							J

(i) Write 2 elements of above which belongs to the same group. (02 mark)

(ii) Write one common property for G, H , I, J? (02 mark)

- (iii) Construct the chemical formula of the chemical formed out of B and F. (02 mark)
- (iv) Which chemical elements may reacts with water by forming a flame. (01 mark)
- (v) Which elements may involving making a lattice structure? (02 mark)

03. (A)



The above set up was prepared to fill some ink bottles equally. There is a cube of metal with the length, breath and the height are 5 cm, 3 cm and 10 cm. When the cube is immersed in the ink a volume of ink is displaced out to the ink bucket.

- (i) What is the tactic which has used to up lift the cube of metal easily? (01 mark)
- (ii) Write the two forces acts on the string when the metal cube is freely hung on it? (02 mark)
- (iii) If the cube is held by a man, when will the man will feel the lowest tension among following situations.
- (1) When the cube is fully immersed
- or
- (2) When the cube is partially immersed. (02 mark)
- (iv) Write the relationship between the up thrust (U), weight (W) and the T – Tension of the String, when the cube is fully immersed in the liquid. (02 mark)
- (v) Calculate the mass of ink that fill the bottle at a time. (02 mark)

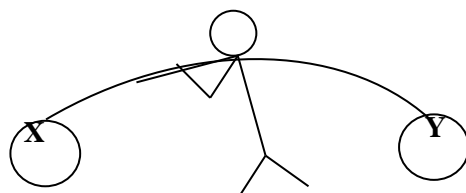
(B) The mass of the cube in A is 1.5 kg. It is in 2m away up from the ground.

- (i) Which form of energy is possessing in the cube at above (03 mark)
- (ii) Find the weight of the cube? (02 mark)
- (iii) Calculate the amount of energy stored in the cube. (02 mark)
- (iv) If the string which the cube is held broken the cube falls to the ink container.

(a) Write the energy conversion takes place here. (02 mark)

(b) Write one tactic that can practice to reduce such accidents. (02 mark)

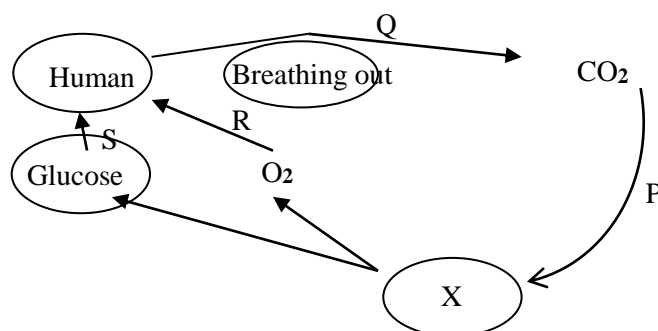
(C) The following diagram shows how a weight carried earlier using a “kada” X and Y are the 2 weight at both ends.



(i) If the above system is in an equilibrium show the forces in a diagram. (02 mark)

(ii) Write one action that can be taken to reduce by the person who carry it, to reduce the weight of it. (02 mark)

04. (A)



The above diagram depicts a relationship between the man and organism called X.

(i) Identify and the organism X? (02 mark)

(ii) What process is shown by the letter R? (02 mark)

(iii) The organism X obtain CO₂ by the process P. Write one raw material of the process P? (02 mark)

(iv) The organism X help to balance two gases. What are they? (02 marks)

(v) Name one organelle which is in cells in X but not in animal cells? (02 mark)

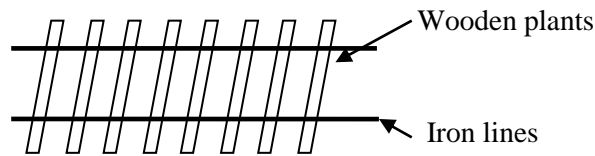
(vi) What is the process G which release more CO₂ to the atmosphere? (02 mark)

(vii) Human use energy which is produced by burning glucose?

(a) What is the form of energy that stored in glucose? (02 mark)

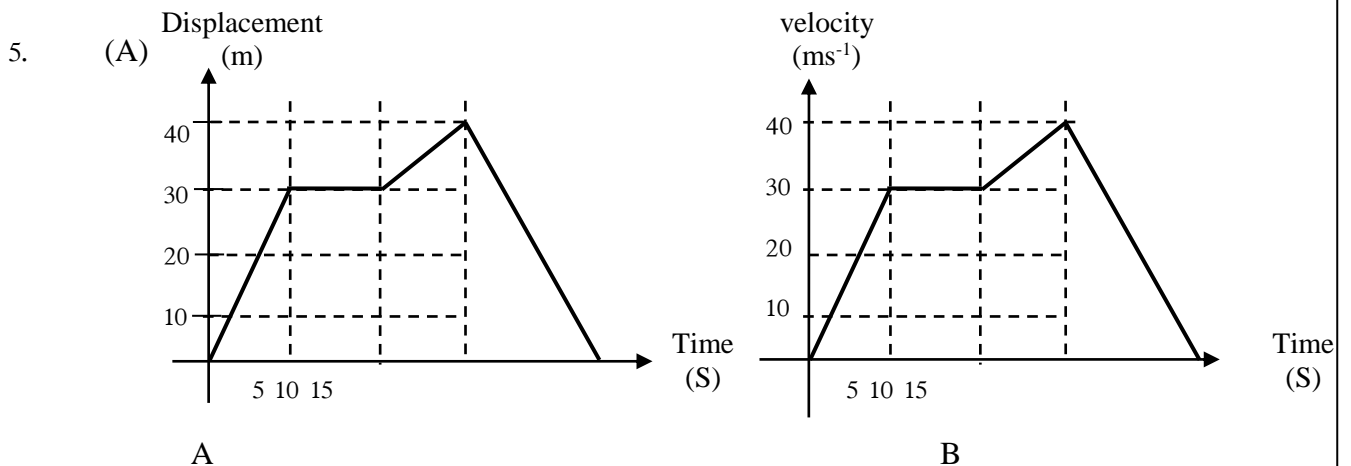
(b) Write the balanced chemical equation for the breaking down of glucose for the Production of energy. (02 mark)

(B) The railway system is a good solution for the transportation of people and goods.



- (i)** What is the main reason to consider the train is a good mode of transportation. **(02 mark)**
- (ii)** Write one scientific reason to use wooden plank in rail ways? **(02 mark)**
- (iii)** If the mass of a train is 10 000 kg and it has started from a rest gaining 10 ms^{-1} velocity during 20 mints.
 - (a)** What is the acceleration of the train? **(02 mark)**
 - (b)** Find the force exerted by the engine for the above motion? **(02 mark)**
 - (c)** Calculate the momentum of the train. **(02 mark)**
- (iv)** Explain the reason for the occurrence of fire in between the rails and railway lines when breaking. **(02 mark)**
- (v)** The railway lines are made of mainly with iron but there are big bars of magnesium which are connected with them. Why is that? **(02 mark)**

05.



A. The above graphs show a motion made by a man and a vehicle.

- (i)** Which graph shows a resting period in the motion? **(2 marks)**
- (ii)** Describe the motion in A and B during the first 5 seconds. **(2 marks)**
- (iii)** Both the graphs are similar in the shape. Write another similarity of both the graphs. **(2 marks)**

(iv) Find the distance which the object has moved during the period of 5s – 10s in the graph B.

(2 marks)

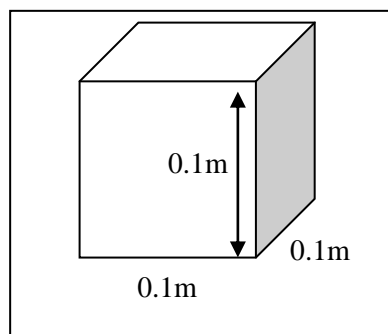
(v) There are instances in both motions, where the unbalanced force become zero. Which is the time periods of both the graphs that show the zero unbalance forces. (2 marks)

(vii) Find the distance during the time period of the 0 to 5 seconds of the graph B

(vi) Which graph may represent the motion of the man?

(2 marks)

(B)



The following experiment was done by a student to understand about the matter. Answer the following questions regarding the given carbon block for the above experiment. The mass of the block is 2.26g. The length, breath and the height are 0.1m. The relative atomic mas of carbon is 12.

- i. What is the building unit of carbon?
- ii. Which is the physical state of carbon in the room temperature?
- iii. Calculate the volume taken by the carbon block in the space?
- iv. Write two evidences seen here which are used to prove that the carbon is a matter?
- v. Calculate the mass of one mole of carbon?
- vi. One mole of carbon contain 6.022×10^{23} of carbon atoms .
Calculate the number of moles in the given cube of carbon.
- vii. what should be the mass of the element sulphur to obtain the same number of atoms as in 12g of carbon if the relative atomic mass is of sulphur is 32g.