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சபரகமுவமாகாணகல்வித் திணைக்களம்
Sabaragamuwa Provincial Department of Education

පළමුවාර්ෂිකය - 2018
முதலாம் தவணைப் பரீட்சை 2018
First Term Test – 2018

11 ශ්‍රේණිය
தரம் - 11
Grade - 11

විද්‍යාව I
விஞ்ஞானம் I
Science I

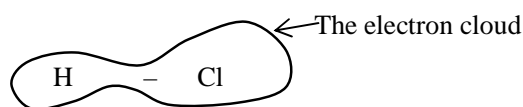
පැයඑකයි
1 மணித்தியாலம்
1 Hours

■ **Answer all the questions on this paper itself.**

01. The unit which use to measure the power?
 (1) W (2) J (3) Pa (4) N
02. Which law explains that every reaction has opposite reaction which is opposite in direction and Similar in magnitude,
 (1) Law of Archimedes (2) Newton's 1st law
 (3) Newton's 3rd law (4) Ohms law
03. The mercury barrow meter is used to measure the atmospheric pressure. Which might be the height of the mercury column of the above barrow meter at the sea level?
 (1) 760 cm (2) 76 cm (3) 50 cm (4) 10 cm
04. The deficiency of which of vitamin directly effects on making gum bleeding,
 (1) A (2) B (3) C (4) D
05. Which of the followings are common for both tissue culture and for the obtaining of plants by roots,
 (1) Both are artificial propagating methods.
 (2) Both are natural propagating methods.
 (3) Both are vegetative propagating methods.
 (4) Both are producing large number offspring's.
06. The correct Lewis structure of CO₂ molecule?
 (1) $\text{O}=\text{C}=\text{O}$ (2) $\text{:}\ddot{\text{O}}\text{:}\times\text{C}\times\text{:}\ddot{\text{O}}\text{:}$
 (3) $\text{O}=\text{C}=\text{O}$ (4) $\text{:}\ddot{\text{O}}=\text{C}=\ddot{\text{O}}\text{:}$

- 07.** It is essential to wear a lifesaving jacket when boating always. Which may be the scientific reason for the requirement?
- (1) It stops the floating ability on the water.
 - (2) It exerts an additional up thrust to float on the water surface.
 - (3) It reduces the weight of the person who is drowning.
 - (4) It increases the heart rate of the drowning person.
- 08.** Non spreading diseases are very common than spreading diseases in Sri Lanka. Select the non-spreading disease from followings,
- (1) Herpes
 - (2) Hemophilia
 - (3) Diabetes
 - (4) Dengue
- 09.** In making a concrete mixture, stones, sand and cement are mixed well with water to the ratio of 3 : 2 : 1. Select the sentence related to increase the strength of the mixture.
- (1) The strength is high if the composition is even.
 - (2) The strength is high if the composition is uneven.
 - (3) The amount of cement should be increased to increase the strength.
 - (4) The strength can be increased by reducing the amount of sand in the mixture.
- 10.** Which answer contains the characteristic of an element which is in the 1st group and the 5th period?
- (1) In gaseous state
 - (2) A non-metal
 - (3) Occurring fire when it is on water.
 - (4) Making acidic oxides.

- 11.** The shape of the electron cloud of the H – Cl molecule is shown below.

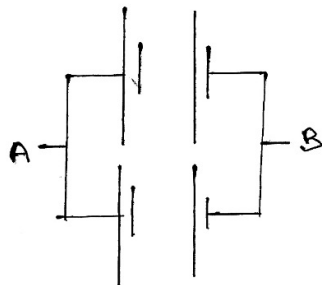


Select the correct statement from below.

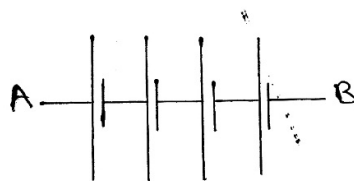
- (1) The hydrogen atoms become (–) ions and Cl atoms has turned into + ions.
 - (2) An ionic bond is formed in between H and Cl.
 - (3) The electronic negativity of Cl is greater than, the electronic negativity of H.
 - (4) The ionization energy of H is greater than the ionization energy of Cl.
- 12.** The common characteristic of the super kingdom Archaea and Bacteria.
- (1) Poikilothermic (Cold blooded)
 - (2) No cellular structure.
 - (3) Autotrophic
 - (4) No organized nucleus.

13. A torch should be made using 1.5 V batteries to get 3V out put. Select the best circuit to obtain 3V.

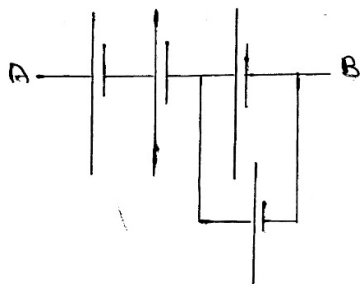
(1)



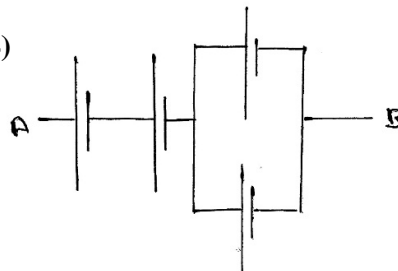
(2)



(3)



(4)



14. The following cells depicts some cells in a plant stem.

(a) Vessels

(b) Tracheids

(c) Phloem cells

(d) Companion cells

Which of these cells conduct water and minerals.

(1) a and b

(2) b and c

(3) c and d

(4) a and d

15. The countries like Sri Lanka which are situated at the equator are suitable to produce plant food.

What is the main reason for this?

(1) There are lots of flat lands available.

(2) The availability of sunlight throughout the year.

(3) Production of chemical fertilizers.

(4) Availability of more CO₂ gas.

16. The cinnamon oil is very expensive in the market. Which of extraction method is used in production of cinnamon oil.

(1) Simple distillation

(2) Fractional distillation

(3) Steam distillation

(4) Solvent extraction

17. The sulphate of X is X₂(SO₄)₃

What may be the carbonate of X,

(1) XCO₃

(2) X₂(CO₃)₃

(3) X₂CO₃

(4) X₃(CO₃)₂

18. One student decided to electrolyze water by the sunlight for an exhibition. Select the answer which include the test, which can be used to identify the gases produced in the above test.

- (1) Insert a splinter and shake with lime water.
- (2) Increasing a glowing splinter and inserting a non-glowing splinter.
- (3) Using lime water and using litmus.
- (4) Shaking with Fehling's and using litmus.

19. There is a 0.5 mol dm^{-3} solution of glucose and 100 ml of that is taken out of it. The mass of glucose in that 100 ml is?

- (1) $\left(\frac{0.5}{1000} \times 100\right) g$ (2) $0.5 \times 100 g$ (3) $\left(\frac{100}{1000} \times 100\right) g$ (4) $\left(\frac{90}{1000} \times 100\right) g$

20. It is said that a grown plant can absorb 22 kg of the gas Carbon dioxide during a year. Some of importance of above is mentioned below.

- (a) The occurrence of the photosynthesis.
- (b) Removing of excretory matters of organisms.
- (c) Controlling the increment of the temperature of the atmosphere.

Which of the above are correct,

- (1) a and b (2) b and c (3) a and c (4) a, b and c

21. A student wanted to get the following things done.

- (a) To remove CO_2 gas.
- (b) To remove H_2O vapours.
- (c) To identify CO_2

Which answer contain the chemicals to the order. That can be used for above purposes.

- (1) KOH , CaCl_2 , Ca(OH)_2 (2) KOH , Anhydrous CuSO_4 , CaCO_3
(3) CaCl_2 , KOH , Ca(OH)_2 (4) Ca(OH)_2 , Anhydrous CuSO_4 , Calcium chloride.

22. The time consumed by 2 persons to pass a particular distance are 15 min and 20 min respectively. What the difference of above 2 persons is?

- (1) The used energy (2) Power (3) Work done (4) The height of them

23. Which answer gives an application of gene technology?

- (1) Producing passion fruit by pollinating flowers.
- (2) Producing a type of rice by hybridization.
- (3) Producing a glowing tobacco plant using a gene from a fire fly.
- (4) Obtaining high quality crops using high quality seeds.

24. Select the factors affect the kinetic energy of an object which is projected to the up.

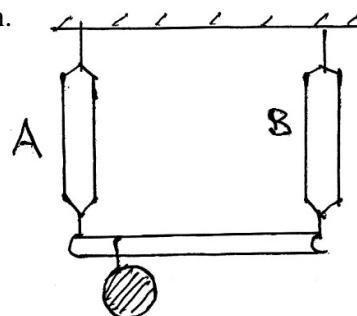
- (a) The velocity of the ball.
- (b) The mass of the ball.
- (c) The volume of the ball.

- (1) a and b (2) b and c (3) a and c (4) a, b and c

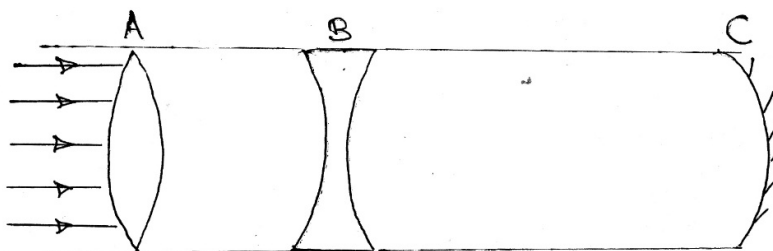
25. A light, even rod is held by two newton'sspring balances as shown.

Select the correct conclusion about the above system,

- (1) Both the readings are equal.
- (2) The reading of the A is larger than B.
- (3) The reading of the B is larger than A.
- (4) The sum of A and B is not equal to the weight of the object.



26.



Which answer gives the behavior of light,when it is passing through the above objects?

- (1) Diverging,converging, converging (2) converging, diverging, diverging
- (3) Converging,diverging, converging (4) diverging,converging, converging

27. A plant which is adapted for the wind pollination?

- (1) Rubber (2) Vara (3) Cotton (4) Rice

28. The main importance of the meiosis.

- (1) To maintain the half of number of chromosomes.
- (2) For the division of cytoplasm.
- (3) To maintain the consistence of the constant number of chromosome of a species.
- (4) For the asexual reproduction.

29. The benedict test was done to a sample of banana (sample A) and the blue colour was observed. The sample B of banana has given the brick - red colour for the benedict test. What could be the conclusion?

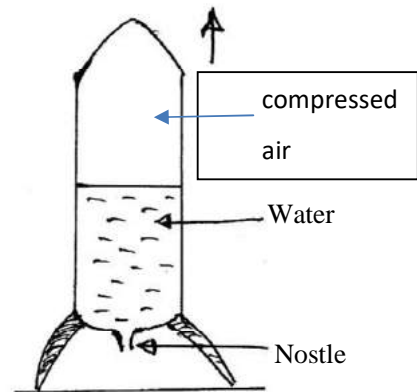
- (1) A has more starch. (2) B has more starch.
- (3) A has more sucrose. (4) B has more sucrose.

30. Which answer is correct about the movement of plants roots?

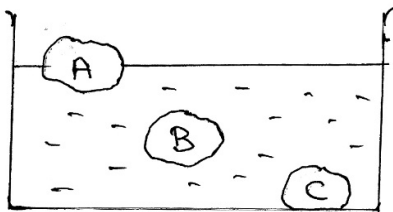
- (1) Positive phototropic (2) Positive geotropic
(3) Positive chemotropic (4) Negative geotropic

31. The mass of a water rocket with water is 500 g. It was made for a water – rocket competition. When the water is released out from the nostril. The rocket moves up. What is the force exerted by the rocket. ($g = 10 \text{ ms}^{-1}$)

- (1) 5 N (2) 10 N (3) 50 N (4) 500 N



32.



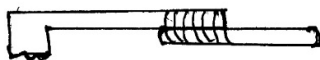
The objects A , B and C stay as shown as in a liquid. The correct sentence about the density of A,B and C objects.

- (1) The density of A is greater than the density of the liquid.
(2) The density of B is greater than the density of C.
(3) The density of C is greater than the density of the liquid.
(4) The density of A is greater than the density of C.

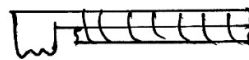
33. A part of the handle of a key is broken as shown below and an additional part is fixed in to the key as below..

What is the easiest method of opening the door?

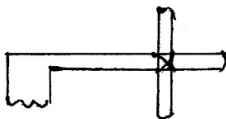
(1)



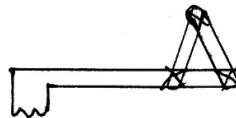
(2)



(3)



(4)



34. The volume of a sound can be increased by tuning the volume controller. What is happening here?

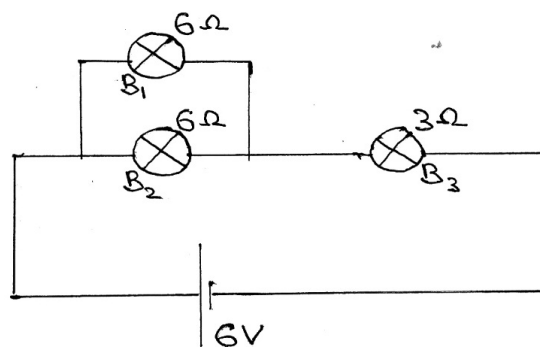
- (1) The reduction of the resistance. (2) The incensement of the resistance.
(3) The increment of the voltage. (4) The decrement of the voltage.

35. One radio Channel is turned at 80 MHz What is met by the MHZ of a wave.

- (1) Velocity (2) Coldness (3) Amplitude (4) Frequency

36. The shown $6\ \Omega$ and $3\ \Omega$ bulbs are connected the 6V battery. What the current flowing through the bulb B is,

- (1) 0.5 A (2) a A (3) 2.5 A (4) 4A



37. The followings are some of reasons for the high consumption of fuel by buses.

- (a) The buses are moving with uniform velocity.
(b) They move always with an acceleration.
(c) They move with regular stoppings.

Which of the above are really effecting on the high fuel wastage.

- (1) a and b (2) b and c (3) a and c (4) a, b and c

38. A use of paper chromatography is,

- (1) Separating component from a mixture.
(2) Separate different colours from a mixture.
(3) Measuring the concentration of component of a mixture.
(4) Separating gaseous components from a mixture.

39. The human – elephant conflict, kidney diseases and garbage problem are the problems not yet solved in Sri Lanka. Which of the below can be used to reduce the above problems.

- (1) Importing food from the countries which use organic – farming.
(2) Making strong stable fences around forests.
(3) Organizing practical workshop for environmental education.
(4) Banding highly toxic agro – chemicals.

40. (a) The number of accidents in highways are lesser than in normal roads in Sri Lanka.

- (b) It is prohibited to enter bicycles and three wheelers to the high way.
(c) Passengers on the buses of high way have a last destination rather than getting down regularly.

Which of the followings could be conclude by the above statement.

- (1) Buses, three-wheelers and bicycle normally face accidents.
(2) The accidents can be reduced by allowing all the vehicles to the highway.
(3) All the buses face an accidents equally.
(4) Accidents can be reduced by making high ways only.

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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

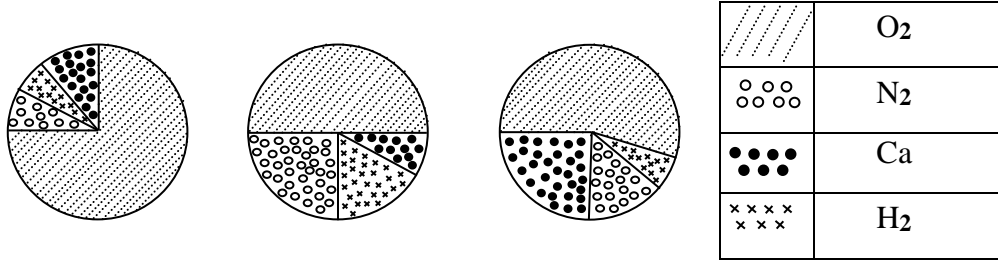
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 3 மணித்தியாலம்
 3 Hours

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?

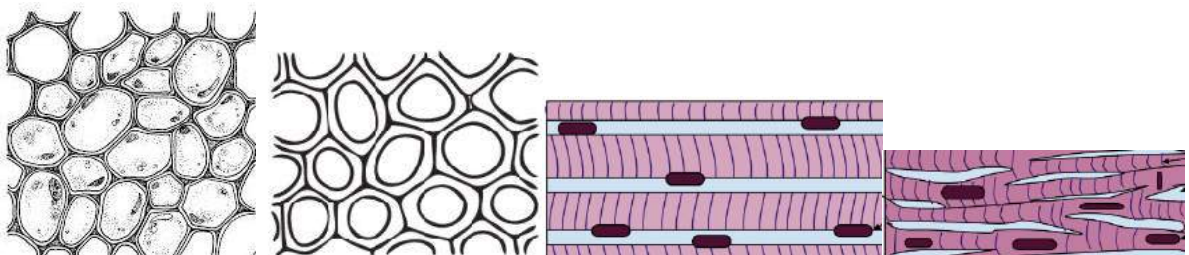
.....

(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?

.....

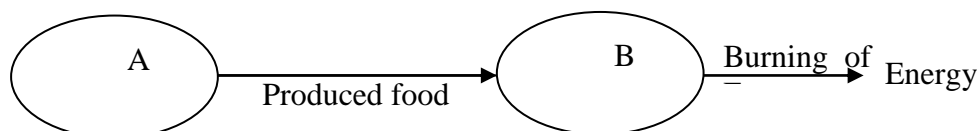
- (iv) Which tissue or tissues are adapted to store food?

.....

- (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.

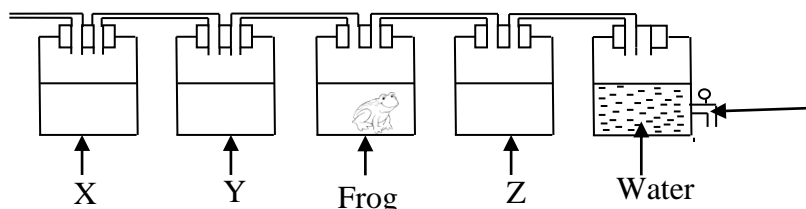
A

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.

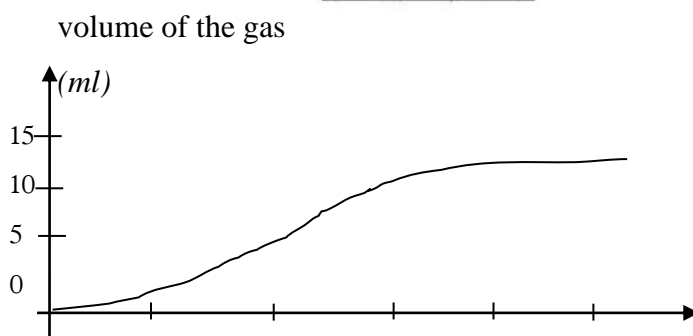
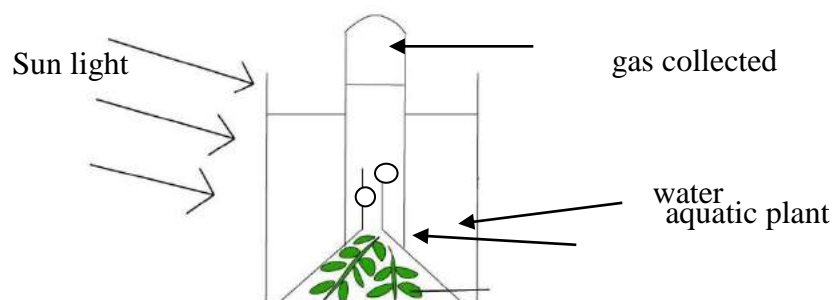
Gecko, cockroach, rat, sparrow, cat, snail, snake.

- (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?

.....

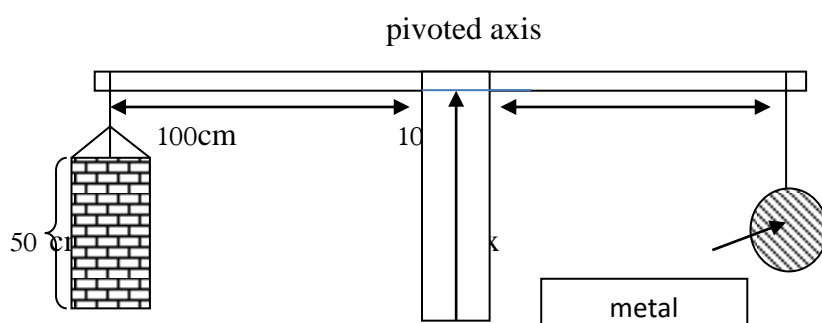
(ii) Write the balanced chemical equation for the above reaction?

.....

(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 exerted 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.
.....

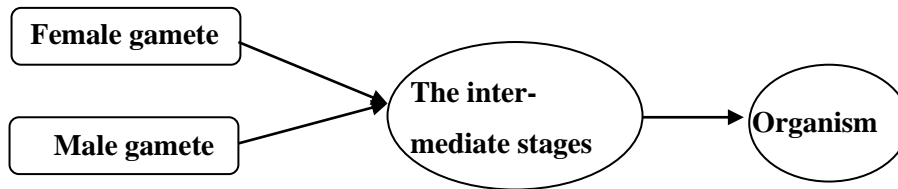
(iv) Draw the correct ray diagram for the above incident using a hand lens.

(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 CO_2 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 $\text{CO}(\text{NH}_2)_2$ calculate the mass of urea in one mole of Urea.

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

(iii) Name a source of CO_2 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.

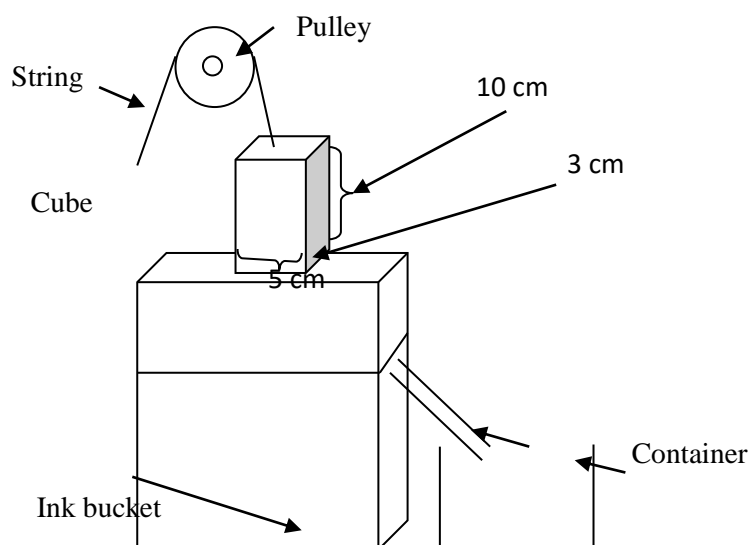
I	II	III	IV	V	VI	VII	VIII
							G
			D	E			H
	B	C			F		I
A							J

(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.

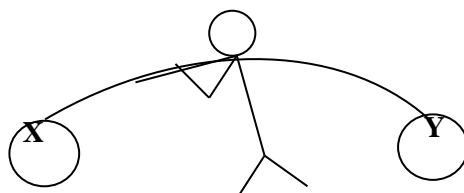
(a) Write the energy conversion takes place here.

(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.



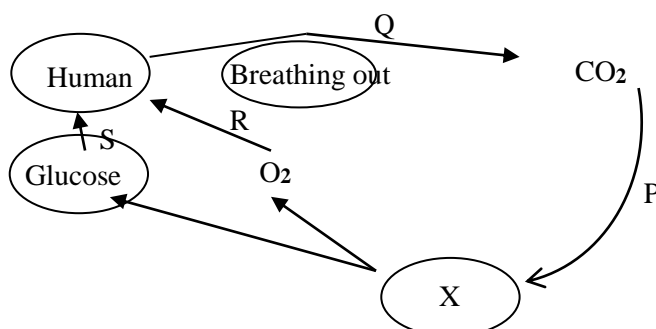
(i) If the above system is in an equilibrium show the forces in a diagram.

(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 CO_2 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 CO_2 to the atmosphere?

(02 mark)

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

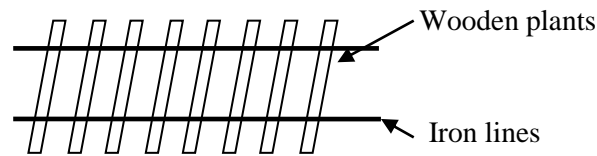
(a) What is the form of energy that stored in glucose?

(02 mark)

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

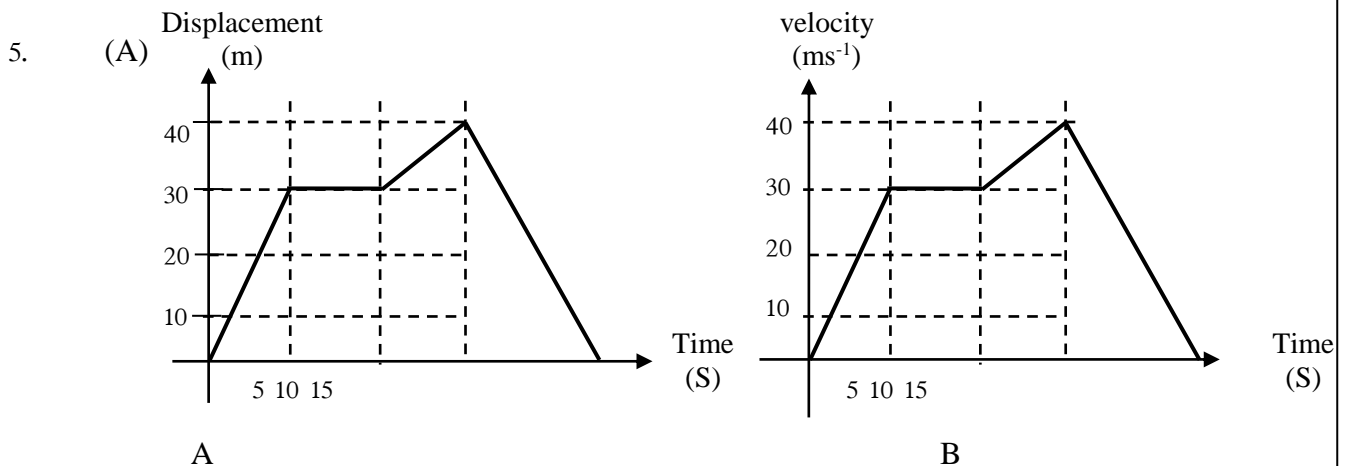
(02 mark)

(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)

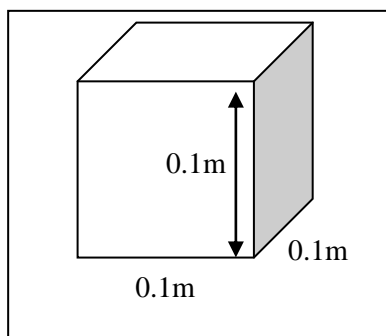
(v) There are instances in both motions, where the unbalanced force become zero. Which is the time periods of both the graphs that show the zero unbalance forces. **(2 marks)**

(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, breadth and the height are 0.1m. The relative atomic mass 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.