ශ්‍රී සුමංගල විද්‍යාලය - පානදුර

Sri Sumangala College - Panadura

ප්‍රථම වාර පරීක්ෂණය - 2020 මාර්තු

1st Term Test - March 2020

ශ්‍රේණිය Grade 11	විෂයය Subject **Science**	පත්‍රය Paper **II**	කාලය Time පැය 03

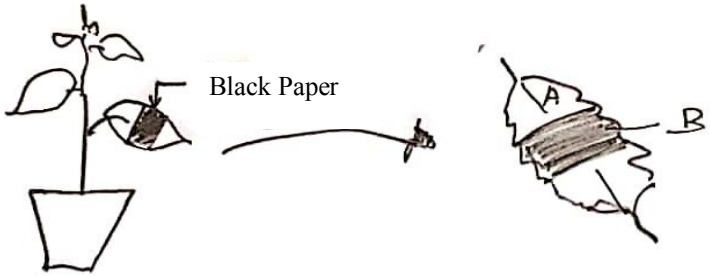
නම :- ..... පංතිය :- .....

Important:

- Answer part A on the paper itself
- Answer 03 questions only in part B (Part B consists of 05 questions)

Part A

01. (A). Photosynthesis is one of the most significant biological processes taking place in our environment. It also helps in maintaining different cycles on the earth. the experiment given below is ealatedto Photosynthesis.



A

I. Name the raw materials required for Photosynthesis

.....

.....

II. Which factor necessary for the Photosynthesis is examined in the above experiment?

.....

.....

III. What are the factors provided to part 'B' ?

……

……

……

……

IV. The setup shown in the above activity is kept in a dark chamber for 24 hours giver the reason for it

……

……

……

……

V. Write the balanced chemical formula which is relevant to Photosynthesis.

……

……

……

VI. Write two cycles that are supported by Photosynthesis.

……

……

……

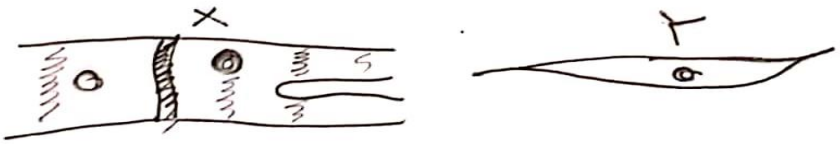
VII. Explain how the process of Photosynthesis contributes to reduce the global temperature

……

……

……

(B). The diagrams goven below show two muscular tissues of human body



I. Name the tissues X and Y

X -..... Y.....

II. Write a similarity of X and Y

.....

.....

III. Write a functional difference between X and Y

.....

.....

.....

IV. Write a structural difference between X and Y

.....

.....

.....

.....

02. (A). There are several method to describe the composition of solutions. " Concentration" is one of the important measures used to describe the composition of solutions.

I. Calculate the molecular malar mass of NaOH

(Na-23/0-16/H-1)

.....

II. Find out the nu of moles contained in 80g of NaOH

.....

.....

.....

.....

III. If 80g of NaOH is dissolved in 500cm^3 of distilled water, calculated the concentration of the solution

.....

.....

.....

.....

IV. Find out the mass of NaOH required to prepare 500cm^3 of a NaOH solutions with a concentration of 2 $moldm^{-3}$

.....

.....

.....

V. What is the international unit of concentration?

.....

(B) Various strategies are used to separate the components of a mixture

I. What is meant by a ' mixture'

.....

.....

II. Give an example for a solid - solid mixture

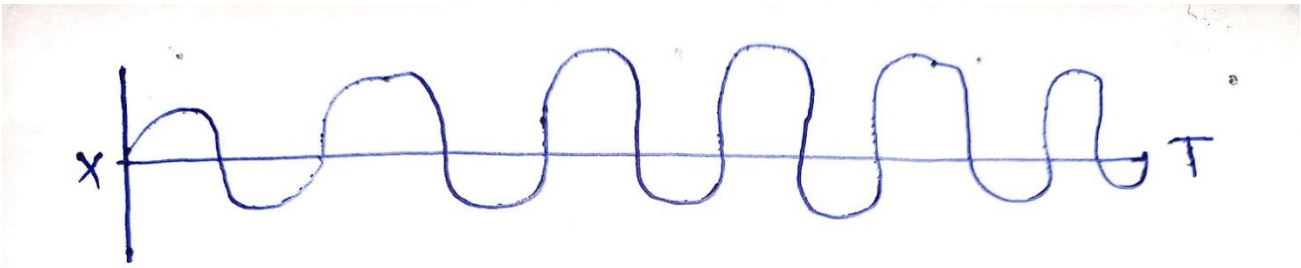
.....

.....

III. Complete the following table

Number	Methods of separating components of a mixture	Instances where the methods are used
1	Centrifugation	
2		Salt Production
3		O2,C2 Production
4	Chromatography	

03. (A) The relationship between the direction of a wave and the motion of the particles can be shown by a diagram as given below



If the wave took 25 to move from X to Y,

I. Find out the frequency of the wave.

……

II. If the wave length is 0.4m, Find out the velacity of the wave

……

……

III. Calculate the penadic time of the wave

……

……

……

(B) Wave are subdivided as mechanical waves and electromagnetic waves

I. Write down two differences between mechanical waves and electromagnetic waves

Number	Mechanical waves	Electromagnetic waves
1		
2		

II. Write an example for Mechanical waves and Electromagnetic waves

Mechanical waves ……

Electromagnetic waves……

III. Two wires with different length are given below the areas of the cross sections of them are equal

A - _____

B - _____

a) Draw the nature of the waves originated when the wires are vibrated.

A _____

B _____

b) Which property of wave B is greater that of 'A'

……

c) Which wire has got the highest pitch

……

d) Write two methods used to tune the instrument strings

1……

2……

e) What is the electromagnetic wave with the highest frequency and write an instance where it is used.

……

…… ……

04. (A). A wet slice of bread was kept for two days at a place with low intensity of light and a tiny sample of it was observed under the light microscope

I. What is the group of microorganisms that could be observed in the above activity?

……

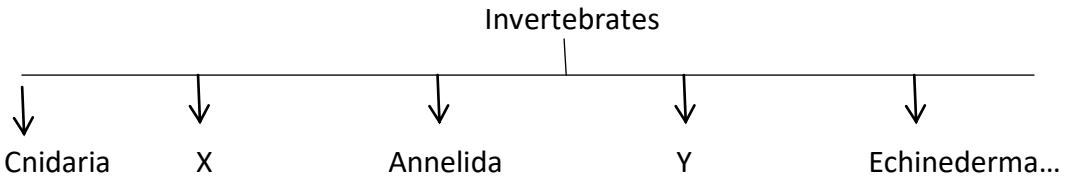
……

II. Which kingdom does the above microorganisms belong to?

……

……

III. The invertebrates are classified as given below



Which animal groups are represented by X and Y

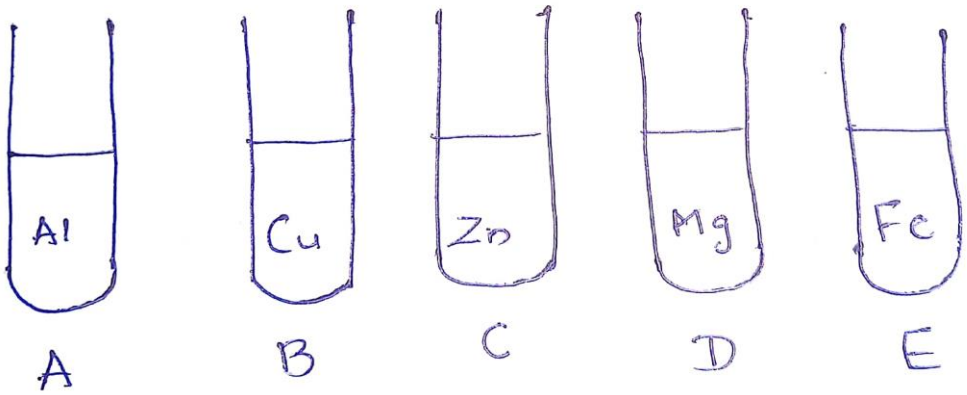
X.....

Y……

IV. Name the two types of complex tissues plants and mention the Functions of them.

Tissues	Functions

(B). The experiment given below have been arranged to examine the reactions between the metals and dilute acids Each test tube contains 10ml of Hcl



I. What is the observation to prove that the chemical reactions are occurring in the test tubes?

……

……

II. How do you identify the metal which reacts fast?

……

……

III. Which metal does not show any reaction?

……

……

IV. Write down the balanced chemical reaction between Mg and Hcl

……

……

V. Calculate the volume of Hcl required to prepare 500cm^3 of Hcl aqueous solution with the composition of 1/10 (V/V)

……

……

……

……

……

……

VI. What is known as saturated solutions?

……

……

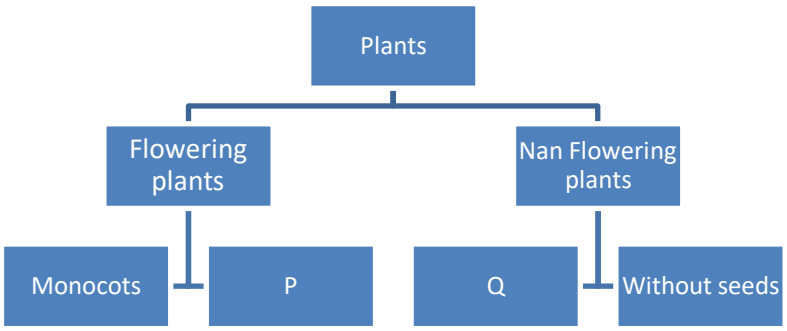
……

……

……

Part B

05. (A). The plants and animal are classified using different criteria. The diagram given below is about plant classification.



I. Which Kingdom do the plants belong to?

……

……

……

……

……

……

II. What is the group of plants represented by P ?

……

……

III. Give an example for Q

……

……

IV. What is the group of animals with three chambers in their heart?

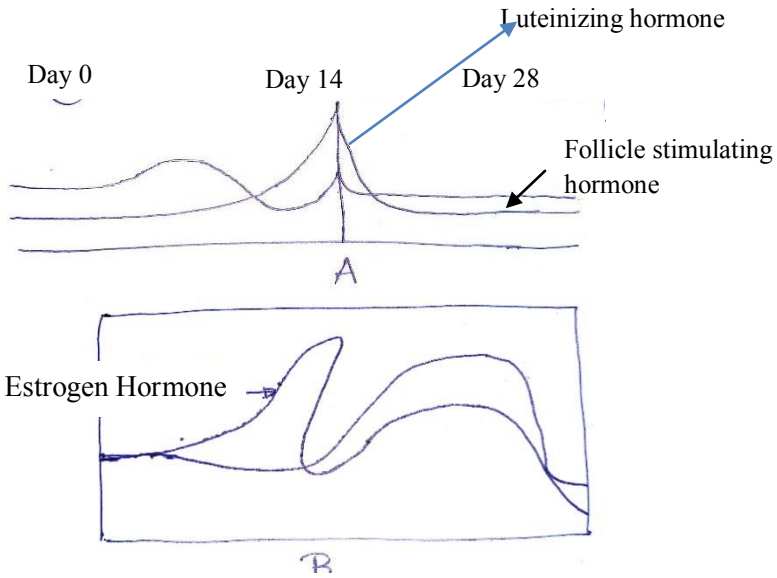
……

……

(B). The process of producing new offspring is simply knows as reproduction. Chemical co –ordination is very important in sexual reproduction of animals. the reproductive unit of plants is the flower.

I. What are the part of the androecium of a flower?

II. Female reproductive system is subjected to many changes during the menstrual cycle due to the action of hormones. The diagrams given bellow illustrates the action/ behavior of hormones in the menstrual cycle.



The hormonal actions represented by A and B diagrams take place at two specific place of the female reproductive system Name that places respectively.

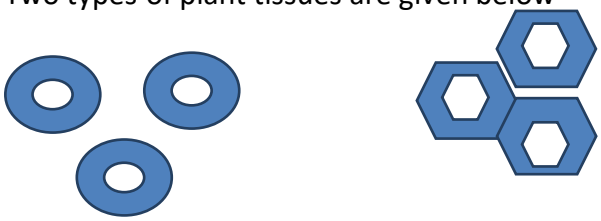
III. What is the other hormone involves in B

a – Dominant characteristic

b - Homozygotes

c – Genetic linkage

(C). Two types of plant tissues are given below



A B

I. Name the tissues shown by A and B.

A - B-

II. Name two places where A and B tissue types are available

A - B-

III. Write two differences between A and B

06. (A). A student got four equal volumes of a $CUSO_4$, solution to four test tubes and added equal sized pieces of Iron , Magnesium, copper and zinc in to the test tubes separately

I. What is the observation which supports the student to conclude that there is a chemical reaction occuring in the test tubes?

II. The student expects to examine the impact of temperature on the rote of reaction between Iron (Fe) and $CUSO_4$. Give steps of on activity that can be done for the above purpose.

III. Write the balanced chemical equation for the reaction between Mg metal and $cuso_4$ solution. (indicate the physical states of substances)

IV. What type of chemical reaction occured in III?

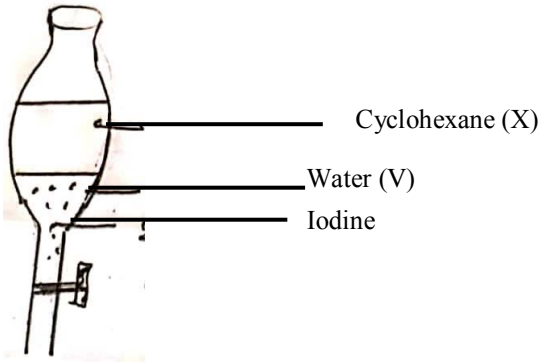
(B). The molar mass of mg is $24gmol^{-1}$

I. What is meant by the statement give n above?

II. Calculate the mass of a Mg atom.

III. Find out the number of moles of Mg atoms in 6g of Mg.

IV. The composition of a solution can be stated by using the concentration too. Find out the mass of $Cuso_4 – 5H_2O$ required to prepare $100cm^3$ of a $Cuso_4$ solution with a concentration of $0.1moldm^{-3}$



(Molecular mass of $Cuso_4 – 5H_2O$ is $249.5g\ mol^{-1}$)

(C). A rough diagram that indicates the separation of components of a mixture is shown below.

I. What is the strategy used to separate components in the above mixture?

II. Write 02 Properties of X and Y solvents.

III. What is the name of the funnel mentioned above?

IV. Write an instance where the method given above is used.

V. What is the method used to separate substances dissolved in water.

7.

(A). Amino acids, Mono saccharides and Deoxyrhibo neucleodes are basic building unit of some bio-molecules.

I. What are the building units of the following bio-molecules
   a. Proteins b. DNA C. Carbohydrates
II. Which building units contain N element as a component?
III. What is the bio-molecule that involves in the growth of the body?
IV. Two samples of a carbohydrate extraction are tested as given below

Step I	A few drops of iodine solution is added to sample - 1
Step II	A considerable amount of amylase solution is added to sample 2 and kept for 20 minutes at a temperature of 37^0c then a few drops of Iodine solution is added.

   a. If purple color was visible in step I, which type of carbohydrate is available in the extraction?
   b. What was the observation received in step II
   c. Accordingly, explain the action of amylase,

(B). The questions given bellow are based on heredity.

I. How many pairs of homologous chromosomes are available in human body cells?
II. Explain what homologous chromosomes are.
III. a) Name the sex chromosomes available in the cells of a women and a man.
   b) Explain how sex determination of man take place using diagrams.

IV. a) What is the hereditary defect caused only to man.

   b) What is the genetically reason for the above defect

08 . (A). P and Q are two applications of friction

P – Roughening the contact surfaces Q- Applying grease between contact surfaces

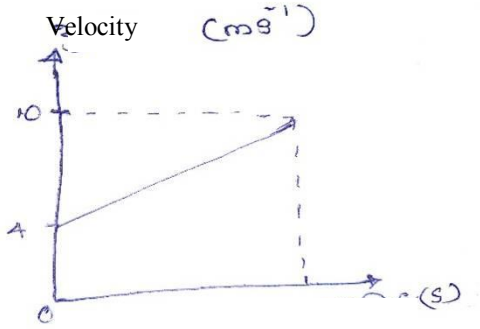
I. Which one of the above methods is used to decrease the friction between surfaces? Explain how method P facilitates for the motion of a car on a rainy day.

(B). An object is moving with a uniform acceleration. The initial velocity and the final velocity of the object are U and V respectively and the time duration relevant to the motion is it.

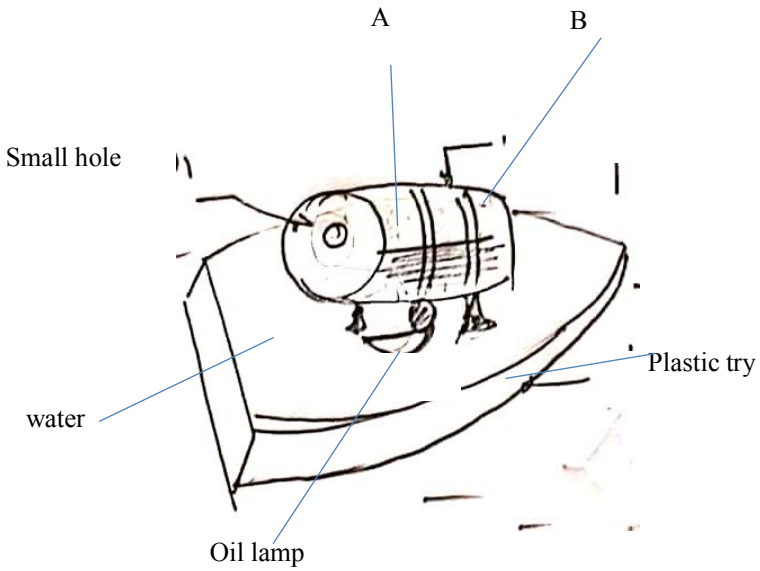
I. Write down the formula that represents the average velocity of the object.

II. Write the formula that represents the displacement of the object within 't' time

III. Find out the displacement of the object that is described by the graph given below.



(C). A diagram of a steam boat is given below.



I. Write the newton's law that involves in the motion of the steam boat.
II. on which ... face out of A and B is the force related to motion is exerted?
III. Give one method to accelerate the motion of the boat.
IV. Why is the boat being balanced on water?

9. A. The graph represents how the electronegativity of several elements is fluctuating
C is an element which is in second period
(The given compounds are not standard compounds)

I. (a) Which element should be in group (v) ?
(b) Write the electronic configuration of the element mentioned above.

II. What is the element which has the lowest ionization energy?

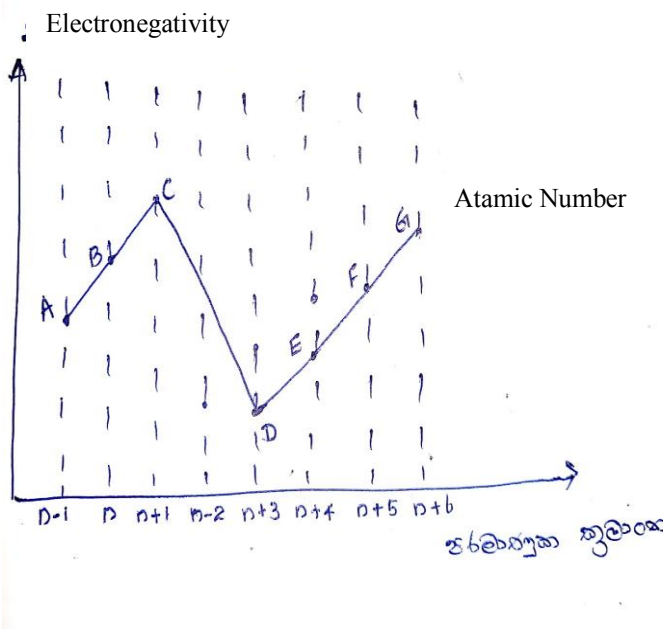
II. Write the formula of the compound that is formed by the combination of B and D elements given in the chart.

III. The element denoted by B
(a) Is combined with hydrogen to from a compounded. What is the bond type available in that compound?
(b) Draw the lewis structure of the above molecule.

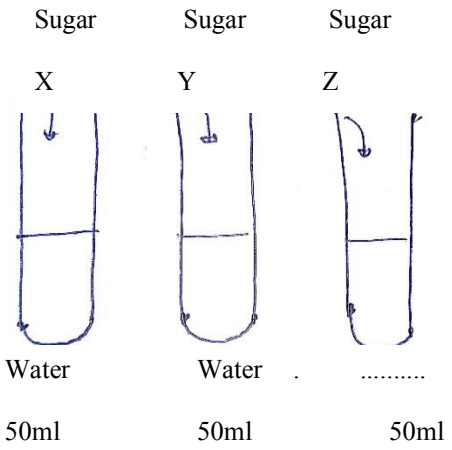
IV. The compound mentioned in (iv) b high boiling point

Explain the reason for it

V. The element hydrogen has three isotopes them in stranded method.

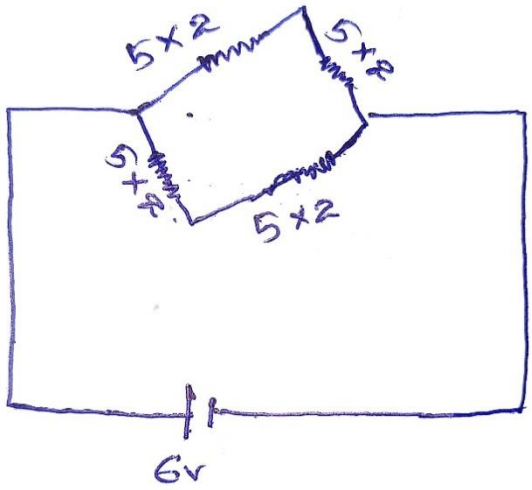


B. A set up which is specially arranged to examine the factors affecting on the solubility is given below. 50g of sugar was added to each test tubes X, Y, and Z and dissolved up to the maximum. The remaining amounts of the sugar on the between of the test tubes are filtered dried up and .....



I. Which setup is used to show that the nature of the solvent effects on solubility?.
II. (a) Which test tube has got more dissolved sugar?
(b) Explain the reason for the above observation.

C. Given below is a circuit resistors.



I. What is known as equivalent resistance?
II. Calculate the equivalent resistance of above circuit
III. Calculate the current flowing through the circuit
IV. Draw circuits again so as to prepare circuits to obtain highest and lowest equivalent resistances.

1.