Minuwangoda Zonal Education

Second Term Evaluation - 2023

Grade - 10

Science - II

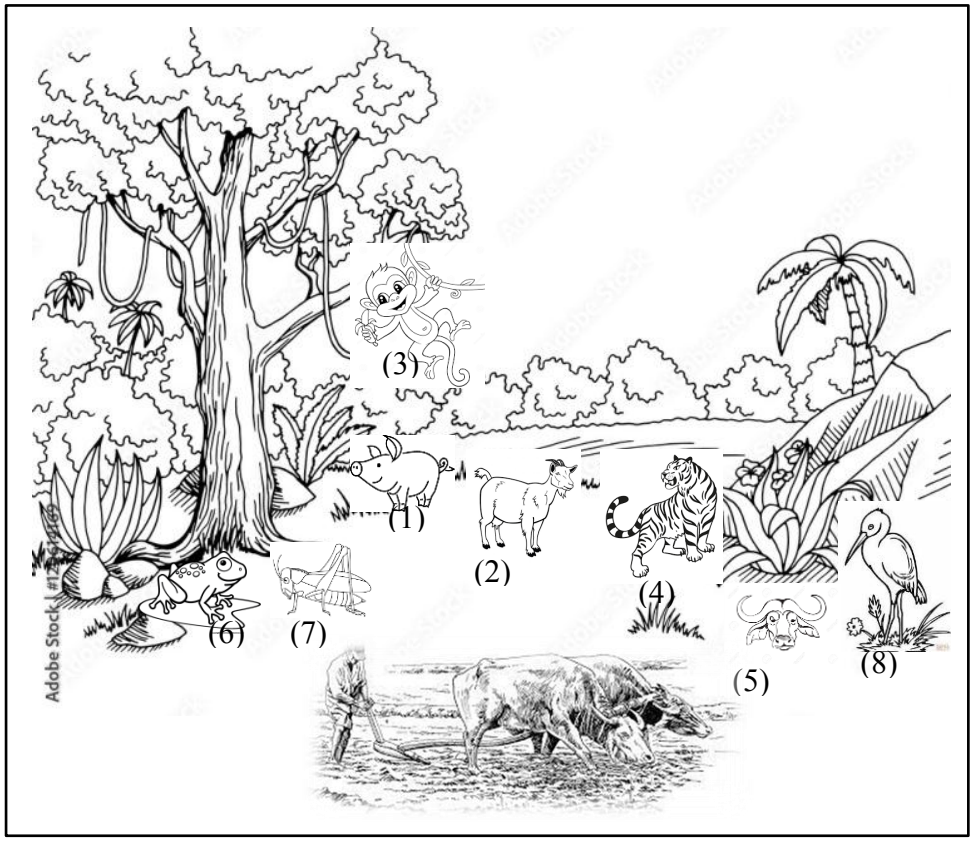
Name: …… Time: 3 hours

- **Answer the four questions in part A in the space provided.**
- **Answer three questions only in Part B**

Part A

01)

(A) An agricultural land in a village close to a thicket is given in the following figure.



1) Pig
2) Goat
3) Monkey
4) Tiger
5) Buffalo
6) Frog
7) Grass-hopper
8) Crane

i. Write a food chain with 4 links related to above thicket. (M 1)

……

ii. Animals can be divided in to two main groups.

a) What is the criteria used to divide animals in to two main groups. (M 1)

……

b) Name those two main groups of animals. (M 2)

……

c) Select an animal in above figure belongs to each of the group mentioned

i. ……

ii. ……

(M 2)

(B) At present machines are commonly used in agricultural purposes. In there a large environmental pollution takes place. Write a measure taken in above agricultural land to minimize the environmental pollution (M 1)

.....

(C) A fungicide contain sulphur was used to control a fungal disease spread in the crops.

i.

a) Write the colour of element sulphur (M 1)

.....

b) Write the period and the group of the sulphur in the periodic table. (M 2)

Period ..... Group .....

c) Name the gas produced when the sulphur is burnt in air. (M 1)

.....

d) Write the chemical equation for above reaction. (M 1)

.....

(D)

i. If the mass of the buffalo is 200kg, find the weight of the buffalo (g=10ms^{-2})

.....(M 2)

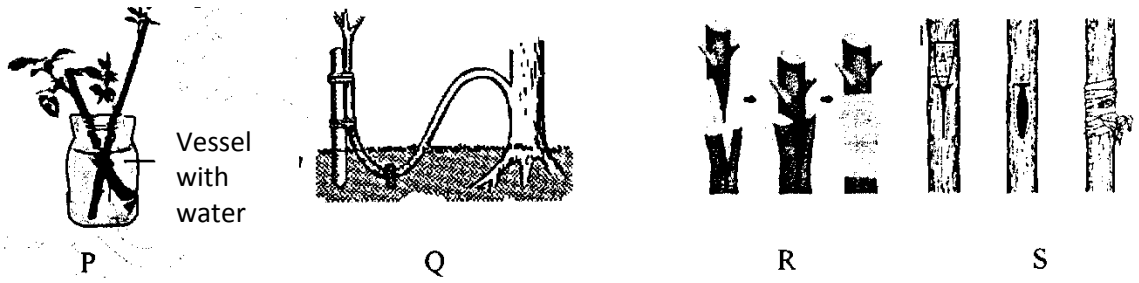
ii. Calculate the momentum of the buffalo if it walks with the velocity of 2 ms^{-1}

..... (M 2)

(Total Marks 15)

02)

(A) P, Q, R, S figures illustrate 3 ways of artificial vegetative propagation.



i. Name the P and Q methods of artificial vegetative propagation (M 2)

P - .....

Q - .....

ii. Name the two parts of the plants used in the method R. (M 2)

.....

.....

iii. Write the two ways of grafting named as R and S. (M 2)

R - .....

S - .....

iv. Jasmin plant doesn't produce seeds although it bear flowers. Write the relevant letter of the vegetative propagation, suitable to get new Jasmin plants. (M 1)

.....

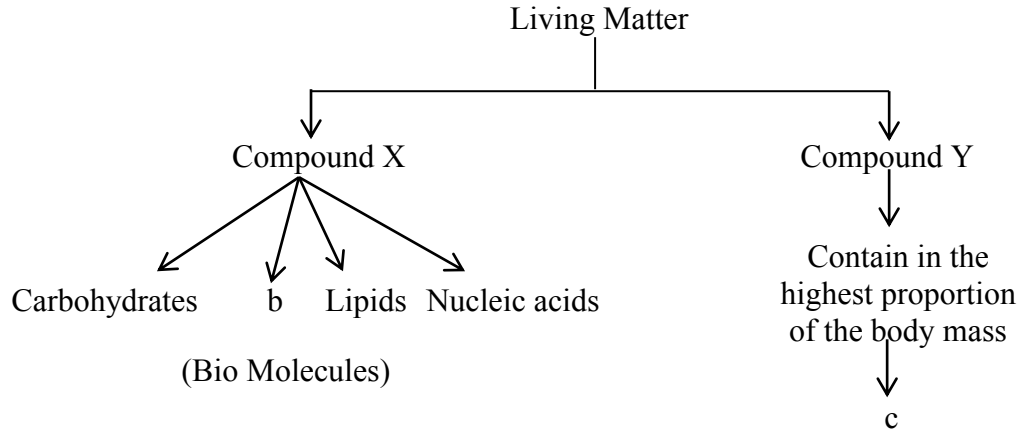
v. Write and advantage and a disadvantage of artificial vegetative propagation.

.....

.....

(M 2)

(B) A chart prepared by a group of students about living matter is given below.



i. Name the compound X and Y (M 2)

X - .....

Y - .....

ii. What is the bio molecule named as "b" (M 1)

.....

iii. What is the compound named as "C" (M 1)

.....

iv. Write the type of carbohydrate present in each of the following food.

Ripen fruits - .....

yams - .....

(Total Marks 15)

03)

(A) Dots and cross diagrams of Three molecules formed by x, y, z atoms are illustrated by figure 1, 2 and 3. x, y, z are not true symbols of the respective elements.

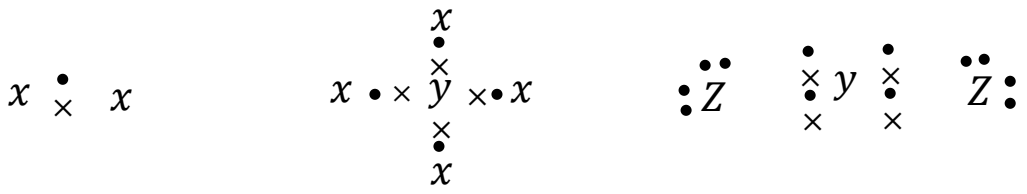


figure 1 figure 2 figure 3

i. What is the valency of atom Y (M 1)

.....

ii. Which of the above molecule form a double bond. (M 1)

.....

iii. What is the bond type illustrated by above figures. (M 1)

.....

iv. What is the atomic number of Z (M 1)

.....

v. Write the chemical formula of compound formed by z and y. (M 1)

.....

(B) Elements belonging to the 3rd period in the periodic table and their atomic numbers are given below. Answer the questions based on it.

Element	Na	Mg	Al	Si	P	S	Cl	Ar
Atomic number	11	12	13	14	15	16	17	18

a) Element with highest first ionization energy

.....

b) Element with highest electro negativity

.....

c) Electronic configuration of chlorine

.....

d) Formula of the compound formed by the reaction between sodium and oxygen

.....

(M 4)

(C) An equation written by a student to calculate the relative atomic mass of an atom is given below.

$$\text{Relative atomic mass} = \frac{6.478 \times 10^{23}\ g}{\frac{1}{12} \times \text{mass of } \boxed{x} \text{ atom}}$$

i. What is the element mentioned as X. (M 1)

.....

ii. Calculate the relative atomic mass of H_2SO_4 and $CaCO_3$ (Ca=40, H=1, O=16, S=32) (M 1)

.....

.....

.....

iii. How many molecules are there in 10g of $CaCO_3$ (M 1)

.....

.....

iv. If the molar mass of water is $18g\ mol^{-1}$, Calculate the mass of 3 moles of water (M 1)

.....

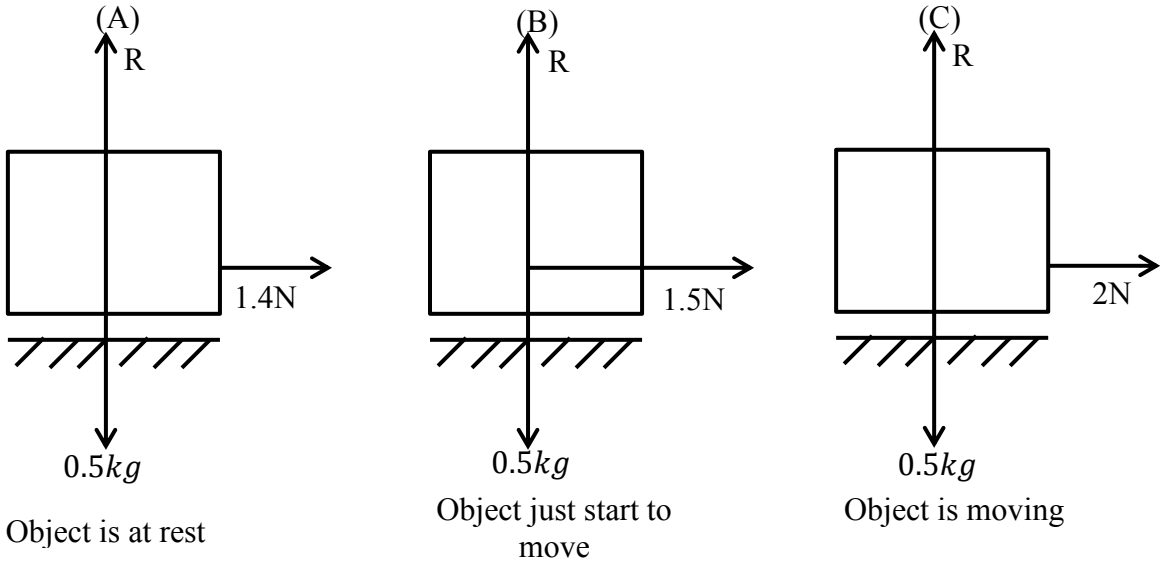
v. How many water molecules are present in $360g$ of water (M 1)

.....

(Total Marks 15)

04)

(A) Different steps in an activity done to study about frictional force is shown in the diagram below.



i. Name the frictional force exerted on the object in step A, B and C (M 3)

A - .....

B - .....

C - .....

ii. Calculate the normal reaction R ($g = 10ms^{-2}$) (M 1)

.....

iii. What is the unbalanced force exerted on the object in step C (M 1)

.....

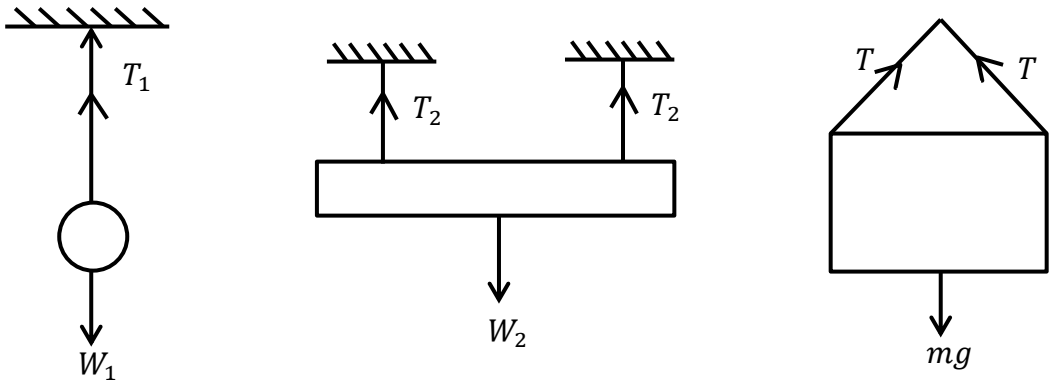
iv. What is the acceleration of the object in the instance C (M 2)

.....

v. What would happen to the force applied if a sand paper is placed in between 2 contact surfaces in instance B (M 1)

.....

(B) Answer the following questions related to systems of forces given.



i. What are the systems maintain equilibrium under 3 forces. (M 2)

.....

.....

ii. Write the relationship between W_1 and T_1 in the system A (M 1)

.....

iii. If the W_2 in figure B is 40N, what is the value of T_2 (M 1)

.....

iv. Write 2 conditions must be satisfied for an object to remain in equilibrium under 3 non parallel forces. (M 2)

.....

.....

(Total Marks 15)

Part B

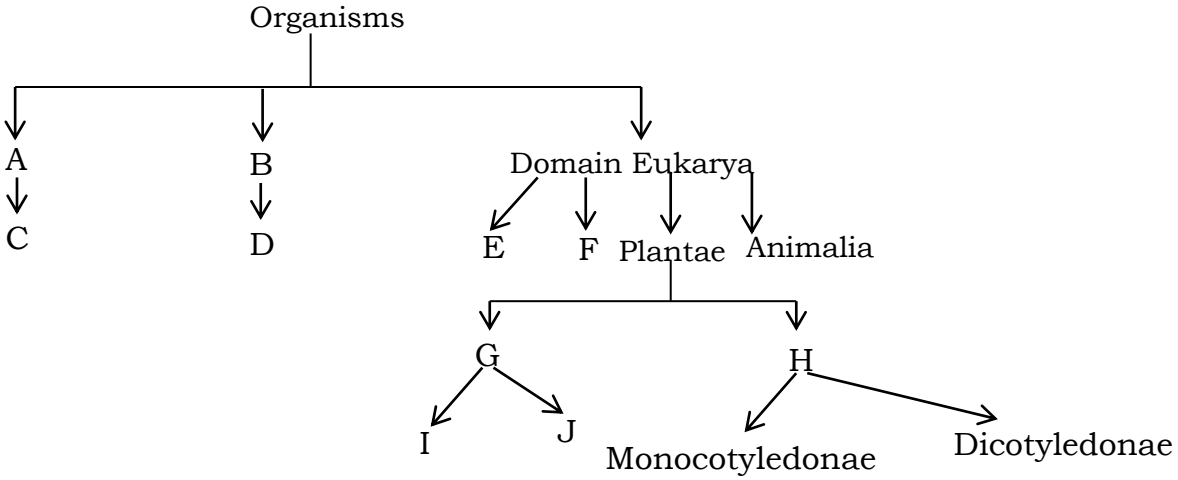
05)

(A) Scientists have introduced different scientific methods to classify organisms.

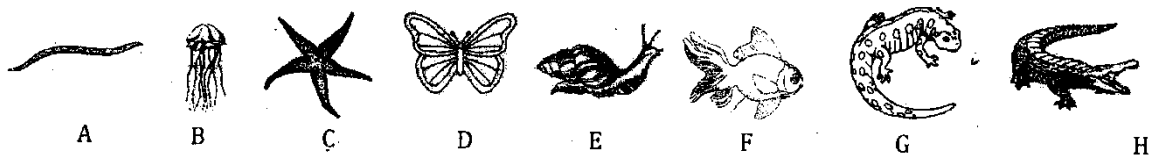
i. Write 2 features of natural classification (M 2)

ii. Who presented the 3 domain classification system (M 1)

iii. A sketch of a 3 domain classification system is given below. Fill in the blank A to J. (M 5)



(B) Few animals belong to kingdom animalia is given below.



Write the relevant letter of the animal with following features

i. Presence of nematoblasts

ii. Possess a heart with two atria and incompletely divided ventricle.

iii. A highly distributed water vascular system present in the body.

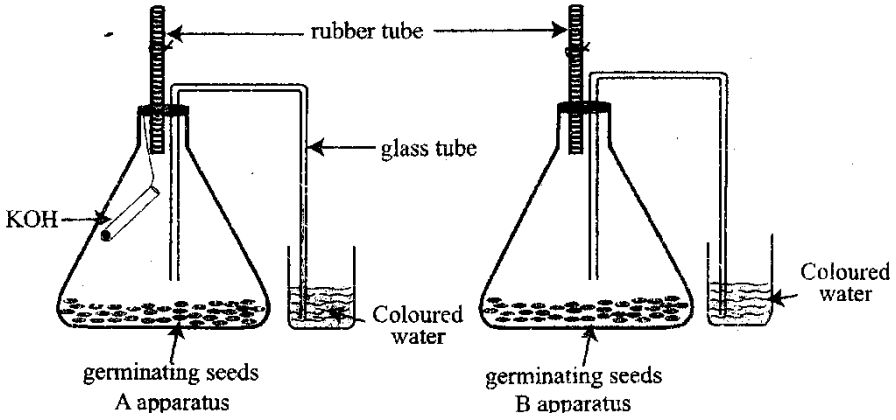
iv. Body is divided in to segments internally and externally

v. Possess jointed limbs

vi. Possess a streamlined body

(M 6)

(C) The diagram shows an apparatus set up to examine the process of respiration

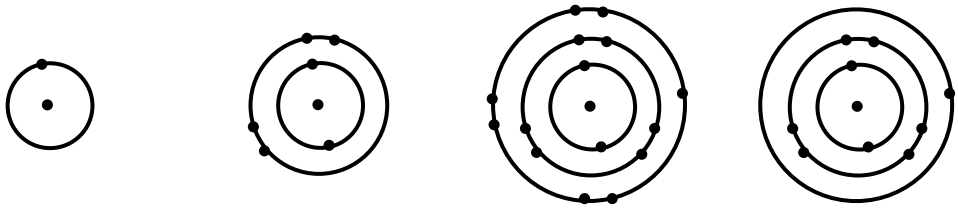


i. What is the gas absorbed in respiration (M 1)
ii. What is the function of KOH set up A (M 1)
iii. Write an observation in each apparatus A and B after about one hour. (M 1)
iv. Explain the reasons for the observations mentioned above iii (M 2)
v. Write an assumption made in this experiment (M 1)

(Total Marks 20)

06)

(A) Electronic configuration of four elements is given below. (A, B, C, D are not true symbols)



i. What is the atomic number of B (M 1)
ii. To which period of the periodic table does the B belong (M 1)
iii. To which group of the periodic table does the C belong (M 1)
iv. Write the formula of the compound formed by the reaction between A and B. (M 2)
v. Write the bond type formed between C and D atoms (M 1)
vi. Write the bond type formed between B and C atoms (M 1)
vii. Write the symbol of element C (M 1)
viii. Draw the dots and cross diagram for the compound formed between A and B (M 2)
ix. Which element has the highest electro negativity out of the elements given above (M 1)

(B)

i. Draw a labeled diagram of a setup used to identify the nature of the bond type present in $CuSO_4$. (Copper sulphate, water, bulb, Beaker, Carbon rods connecting wires, dry cells are provided) (M 2)
ii. Write an observation in above activity (M 1)

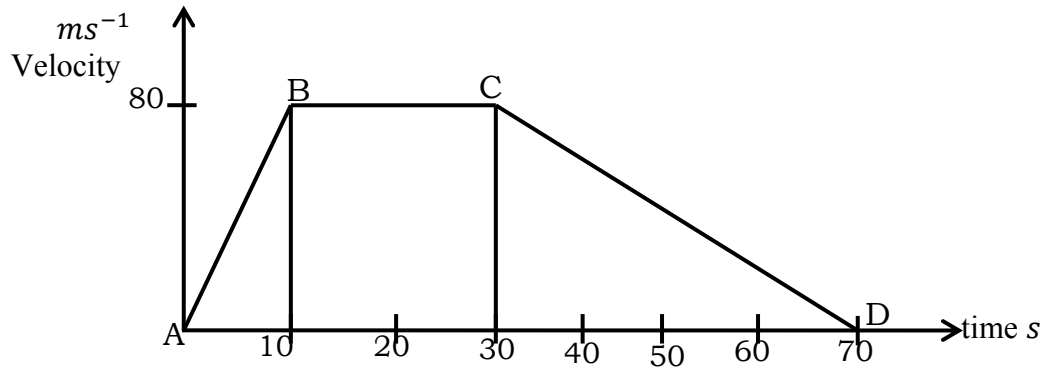
iii. According to the above observation which type of bond present in copper sulphate (M 1)

iv. Write 2 characteristics of compounds with these type of bonds. (M 2)

v. Calculate the relative molecular mass of $CuSO_4$ and H_2O (Cu - 63.5, O=16, H=1, S=32) (M 2)

07)

(A) The velocity time graph of a vehicle moving along a straight line is shown in the figure below.



i. Explain the difference between speed and velocity (M 2)

ii. Explain the motion from A to B (M 1)

iii. Calculate the deceleration of the vehicle (M 2)

iv. What is the displacement of the vehicle at a uniform velocity. (M 1)

v. Find the total displacement of the vehicle (M 2)

(B)

i. Write the equation related to Newton's second law of motion (M 1)

ii. If a force of 10N is applied on a body of 2kg, find the acceleration of the body (M 2)

iii. The mass of a motor car is 1800kg Find the momentum when it is moving at a velocity of $6ms^{-1}$ (M 1)

(C) A coconut fruit of 600g on the top of a coconut tree detaches from the stalk takes 6S to fall to a water body nearby. (g=10ms^{-2})

i. What is the velocity of the coconut fruit when it reaches the water body. (M 1)

ii. What is the height that the coconut fruit fell down. (M 2)

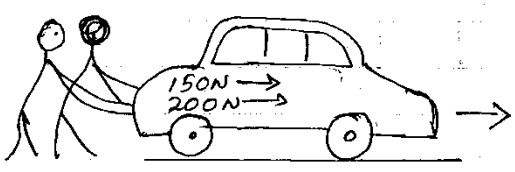
iii. Sketch the velocity time graph for the motion of the coconut fruit (M 2)

(D)

i. The figure shows a motor car stalled being pushed by two people by applying 150N and 200N force. (M 1)

ii. Find the resultant force exerted on the motor car (M 1)

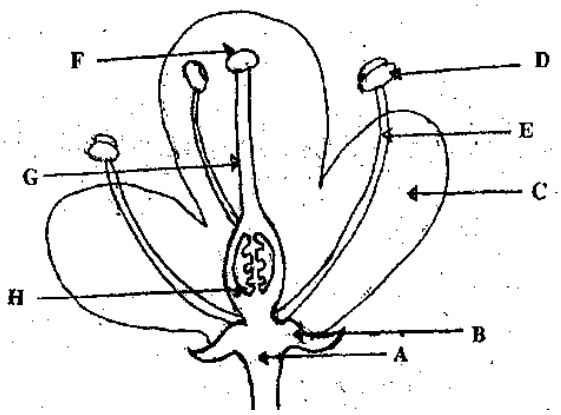
iii. Write an instance where frictional force is used when the motor car is moving (M 1)



(Total marks 20)

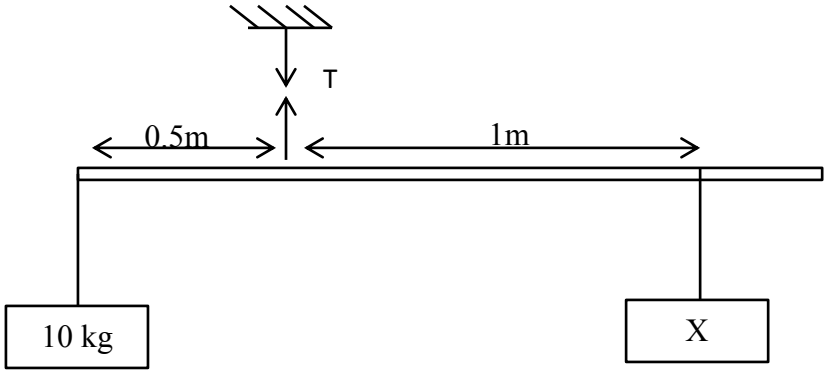
08)

(A) The structure that bears sexual parts of a plant is the flower. The diagram of a typical flower is given below.



i. Identify the parts B, C, F and write a function of each part (M 3)
ii. Write the letters depicted androecium (M 2)
iii. Name the process of depositing gametes produced in D on the F. (M 1)
iv. It is observed in "Pinna" flower, that the stigma is positioned straight while stamens are bent aside. Write an advantage of this adaptation (M 2)
v. A butterfly who sucks nectar from the flower belongs to phylum arthropoda. Write 2 features of arthropods. (M 1)

(B) A light rod is balanced as shown in the diagram.



i. What is the weight of x should be suspended in order to bring the rod in to equilibrium (M 2)
ii. Calculate the tention of the (T) string when the rod is at equilibrium (M 2)
iii. Under which force system that the rod remain in equilibrium? (M 1)
iv. Write 2 conditions must be satisfied to maintain force system as mentioned above. (M 2)
v. What is meant by couple of forces (M 1)
vi. Write 2 instances where couple of forces is applied (M 2)

(Total marks 20)

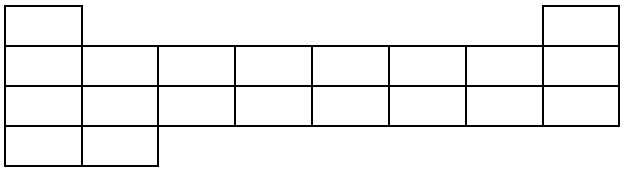
09)

(A)

i. Some elements in the periodic table and their atomic numbers are given below. English letters are not true symbol of the respective element.

Element	Atomic number
A	07
B	06
C	16
D	02

Write the correct position of elements A, B, C, D in the periodic table given below. (M 1)



ii. of above, name the element suitable to fill filament bulbs. (M 1)

iii. Name two elements showing allotropy (M 1)

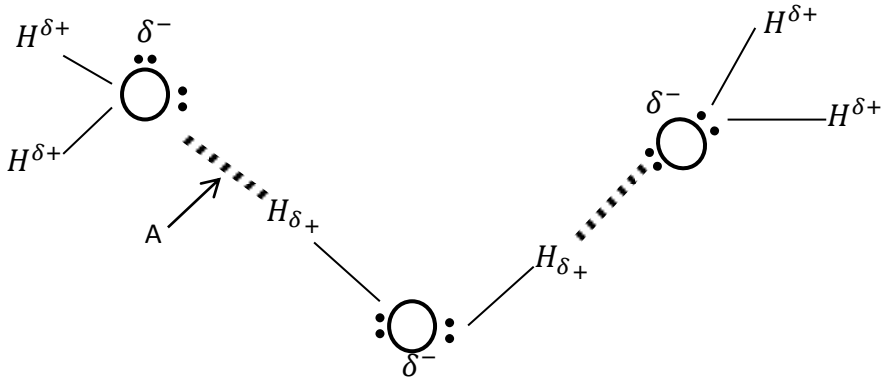
iv. Name the noble gas. (M 1)

(B)

i. What is the type of bonds present in the water molecule (M 1)

ii. Draw the Lewis structure of water molecule. (M 1)

iii. The bonds in water are illustrated by following diagram.

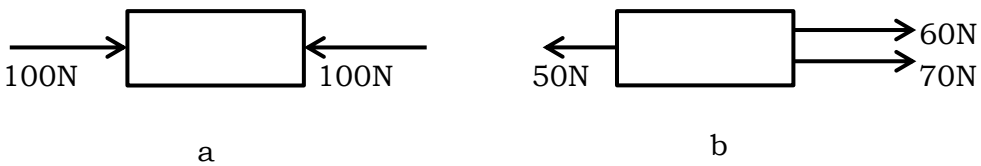


Name the bond type named as A (M 2)

iv. Write a special property possessed by water due to that bond (M 1)

(C)

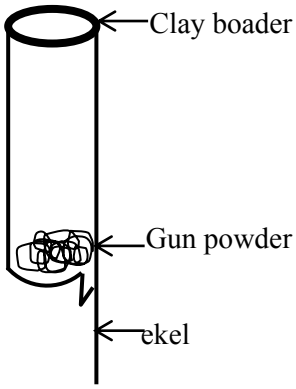
i. The forces applied on two objects are shown in the following diagrams.



a b

What is the resultant of forces in each instance (M 2)

ii. After initiate the function of burning the sky cracker starts the motion. What is the Newton's Law that describe the motion of the sky cracker (M 1)



iii. Copy the diagram of sky cracker in your answer script and mark the action and reaction exerted (M 2)

iv. What kind of the motion has when the remains of the sky cracker, fall the earth after burning the gun powder completely (M 1)

(D) Following table shows manner in which the displacement of object varied with time

time (s)	0	1	2	3	4
displacement (m)	0	3	6	6	9

i. Sketch a displacement time graph for above motion (M 1)
ii. What is the total displacement of the object (M 1)
iii. Find the velocity of the object with in first two seconds (M 1)
iv. How long did the object remain stationary (M 1)

(Total Marks 20)