PROVINCIAL DEPARTMENT OF EDUCATION NORTH WESTERN PROVINCE

THIRD TERM TEST 2019

Science I

Grade 11 **One Hour.**

Name / Index No. :

- **Answer all questions**.
- **In each of the questions from 1 to 40 , pick one of the alternatives (1),(2),(3),(4) which consider is correct or most appropriat**e.
- **Mark a cross (X) on the number corresponding to your choice in the answer sheet provided.**

01. The deficiency of which vitamin delays the clotting of blood when there is a wound ?
(1) Vitamin A (2) Vitamin B (3) Vitamin D (4) Vitamin K

02. What is the element which forms an amphoteric oxide when react with oxygen ?
(1) Sodium (2) Magnesium (3) Aluminium (4) Sulphur

03. The quantity that can be calculated from the area of the geometrical figure between the graph line and the time axis of a velocity-time graph is,
(1) Acceleration of the object. (2) Displacement done in the motion.
(3) Displacement done in a unit time. (4) Total time taken by the object for the motion.

04. As shown in the diagram when the cardboard is hit with the finger tip, it was thrown away and the coin was fallen into the glass. What is the law which can explain this incidence ?

(1) Newton's first law (2) Newton's second law.
(3) Newton's third law. (4) Fleming's right hand rule.

05. Following diagram shows how A and B teams applied the forces in a tug-of-war competition. If the rope remains stationary in this instance, The force applied by B team and the resultant force respectively are,
(1) 3000 N and 0 N
(2) 0 N and 3000 N
(3) 3000 N and 3000 N
(4) 0 N and 0 N

06. What is the importance of meiosis out of the followings?
(1) To develop the body of multicellular organisms.
(2) For the asexual reproduction of some organisms.
(3) Maintain a constant number of chromosomes from generation to generation.
(4) Replacement of new cells for dead cells when healing wounds.

07. What is the type of living entity which cannot be separated as living or non-living ?
(1) Bacteria (2) Virus (3) Amoeba (4) Paramecium

08. What is the feature which can be seen **only in the group Mollusca** ?
(1) Absence of a vertebral column. (2) Live in wet or aquatic environments.
(3) All organisms are being warm blooded. (4) Presence of a muscular foot and a visceral mass.

09 The stage which occur the degradation of the wall of uterus and expell out from the body trough vagina with blood, when the fertilization doesn't take place is,

(1) Follicular phase. (2) Menstrual phase.
(3) Proliferation phase (4) Secretory phase.

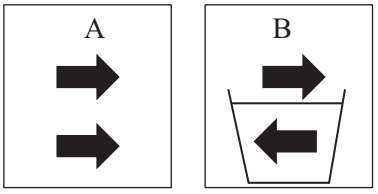
10. The factors which increase the resistance of a conductor are,

1) Increasing the length and cross sectional area
(2) Decreasing the length and the cross sectional area.
(3) Increasing the length and decreasing the cross sectional area.
(4) Decreasing the length and increasing the cross sectional area.

11. What is the **rarely seen inherited characteristic** of human out of the followings?

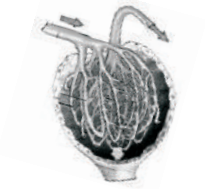
(1) Attached ear lobes and free ear lobes. (2) Hairs being curly and not being curly.
(3) Ability and the inability of rolling tongue. (4) Synductily and polyductily.

12. In the diagram A shows, two arrows are indicated in a cardboard. As shown in the diagram B, when a water filled glass is kept in front of it, the direction of one arrow change. What is the principle which can explain this incidence ?



(1) Refraction of light. (2) Reflection of light.
(3) Dispersion of light. (4) Total internal reflection of light.

13. The filtration of blood plasma from the capillaries of glomerulus into the cavity of bowman's capsule due to the pressure caused by more diameter in afferent arteriole and the less diameter in efferent arteriole is defined as,

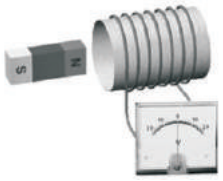


(1) Ultra filtration. (2) Selective reabsorption.
(3) Secretion. (4) Glomerular filtrate.

14. The astronauts used for their communication is,

(1) Electromagnetic waves. (2) Infra sound waves .
(3) Ultra sound waves. (4) X rays.

15. As shown in the diagram, a deflection of the galvanometer can be obtained by using a conductor coil and a magnet, when



(1) Only the magnet is moving in to the coil.
(2) Only the magnet is moving out side which was in the coil.
(3) Only the magnet is rest in the coil.
(4) Only the magnet is moving in to the coil and moving out side.

16. When the correct sequences of an activity are indicated to test the production of starch in leaves,

(1) Wash with water, Boil in water, Boil in alcohol and Add iodine solution.
(2) Boil in water, Boil in Alcohol, Wash with water, and Add iodine solution.
(3) Boil in Alcohol, Wash with water, Boil in water, and Add iodine solution.
(4) Boil in water, Boil in alcohol, Add iodine solution and Wash with water.

17. A coldness is felt when a crystal of ice is touched with the hand. The reason for this would be,

(1) Coldness transfers from the hand to the ice crystal.
(2) Coldness transfers from ice crystal to the hand.
(3) A part of the heat from the hand transfer to the ice crystal.
(4) A part of the heat from the ice crystal transfer to the hand.

18. What is the compound with 40 g mol^{-1} molar mass? (Na = 23, O = 16, H = 1, C = 12)

1) $NaHCO_3$ 2) Na_2CO_3 3) H_2CO_3 4) NaOH

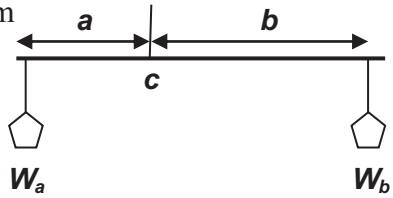
19. Bio accumulation can be expressed as a direct influence of environment pollution .Which is **not a feature** of bio accumulated substances.
(1) Retain for a long period of time. (2) Can pass from one organism to another.
(3) Become active as biochemical.
(4) Being substances which are insoluble in water or fatty acids.

20. When a strong base and a weak base are indicated respectively,
(1) NaOH and KOH (2) NaOH and NH_4OH
(3) NH_4OH and CH_3COOH (4) NH_4OH and KOH

21. What is the correct statement regarding the frictional force, when an object is kept on a uniform surface ?
(1) The dynamic frictional force remains constant when the object is moving.
(2) The dynamic frictional force is greater than the limiting frictional force in a small quantity.
(3) When increasing the external force, the limiting frictional force is constant, till the object start to move.
(4) The frictional force become zero, when the object is at rest and move with a uniform velocity.

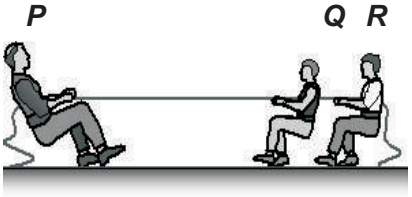
22. What is the answer which contain the compounds with ionic bonds?
(1) NaCl, HCl and H_2SO_4 (2) NaCl, H_2O and K_2SO_4
(3) NaCl, K_2O and $MgSO_4$ (4) HCl, H_2O and CO_2

23. As shown in the diagram, a rod is remained at equilibrium when it is hanged by the point ***c (a < b)*** .
Followings are the ideas of three students regarding this equilibrium



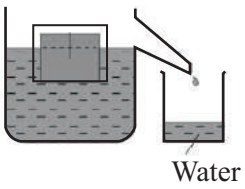
A) W_b weight is greater than W_a weight.
B) When W_b weight is brought towards **c** as $a = b$, the rod rotate Anticlockwise direction.
C) When the rod is at equilibrium $a \times W_a = b \times W_b$.
The correct statements out of them are,
(1) A and B only. (2) B and C only. (3) A and C only. (4) B and C

24. The diagram shows how three people exerted force **P,Q** and **R** on a rope. If the equilibrium exist when the forces are applied in this manner ,What is the correct statement regarding ***P,Q*** and ***R*** forces.



(1) $P = Q = R$ (2) $P = Q + R$ (3) $P > Q + R$ (4) $P < Q + R$

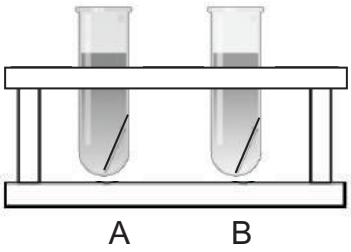
25. A wooden block is partially submerged and float in an overflow vessel. The displaced water has collected in to the beaker. Consider the statements regarding this.



A. The volume of the displaced water is equal to the volume of the object.
B. The weight of the displaced water is equal to the weight of the object.
C. The weight of the displaced water is equal to the up thrust act on the object.
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 and C all

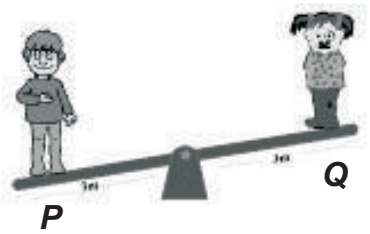
26. Followings are some ideas introduced by four students regarding the activity series.
(A) The metal gold is situated at the bottom of activity series and extract by using simple physical methods.
(B) To extract iron from iron ore, fused iron ore is electrolyzed.
(C) Zn can displace, Cu from $CuSO_4$ and Mg cannot displace from $MgSO_4$.
(D) Rusting of iron can be prevented by contacting the metals like Mg, Zn with iron.
The correct statements are,
(1) A and B. (2) B and C. (3) A, C and D. (4) A,B and C

27. Two boiling tubes with acidified $KMnO_4$ were taken and added a clean iron nail per each tube. What should be done in the tube B to change the $KMnO_4$ solution to colourless quicker Than the tube A



(1) Increase the $KMnO_4$ concentration.
(2) Keep the tube in a vessel with ice cubes.
(3) Keep the tube in a vessel with hot water.
(4) Remove the iron nail in the tube.

28. The diagram shows how two persons stay on a see saw. Given below are the ideas presented by three students regarding their potential energy.



A) The potential energy of P person get a higher value
B) The potential energy of Q person get a higher value
C) The potential energy of both persons get the same value
D) When swing the see saw, the person at a higher position has A higher potential energy.
The correct statements are,

(1) A and B only. (2) C and D only. (3) A and C only (4) B and D

29. Following are the statements presented by four students regarding the structure of a neuron.
A) The neuron consist of two main parts as cell body and the nerve fibers.
B) The long process that arise from the cell body is axon.
C) Axon transmit impulses out from the cell body.
D) The dendrites bring the impulses to the cell body.
The correct statements out of them are,

(1) A and B. (2) C and D. (3) A, C and D. (4) A,B and C.

30. 100 cm^3 of an aqueous solution contains 4 g NaOH . What is the concentration of the solution? (Na = 23, O = 16, H = 1)

(1) 0.1 mol dm^{-3} (2) 1 mol dm^{-3} (3) 2 mol dm^{-3} (4) 4 mol dm^{-3}

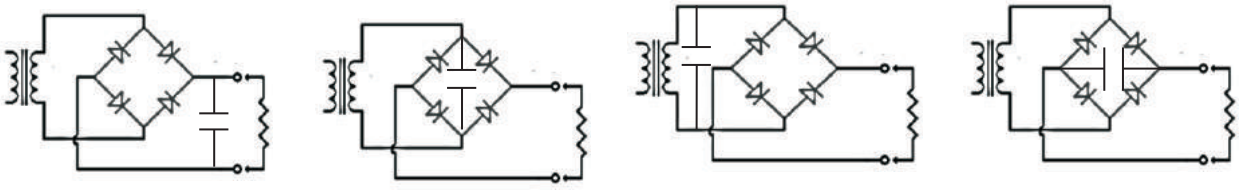
31. When a very diluted solution of 100 cm^3 NaOH is mixed with a diluted solution of 100 cm^3 HCl , the temperature of the solution changed from 30 ^{0}C to 40 ^{0}C. What is the heat change occurred? (Specific heat capacity of water = 4200 J kg^{-1} K^{-1})

(1) 2100 J (2) 4200 J (3) 8400 J (4) 16800 J

32. The head lamps of a motor vehicle has two bulbs of 60W power. What is the electrical energy consumed when this motor car travels for two hours with head lamps on ?

(1) 120 J (2) 240 J (3) 432000 J (4) 864000 J

33. After the full wave rectification of alternative current, what is the circuit which has connected the capacitor correctly to smooth the current?



(1) (2) (3) (4)

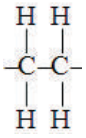
34. Followings three metals are applied on iron to prevent rusting.

A) Zinc B) Tin C) Nickel

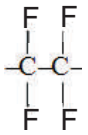
Things used for cathodic protection out of them

(1) A only. (2) B only (3) B and C only. (4) A,B and C all.

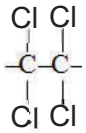
35. What is the repeating unit of polyvinyl chloride (PVC) ?



(1)



(2)



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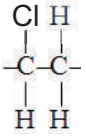


(4)

36. Consider the following statements regarding the step down transformers.

A) The secondary coil has less number of turns than primary coil.

B) The induced voltage of secondary coil is greater than the primary coil.

Out of them ,

(1) B is correct and A is incorrect. (2) B is correct and A is incorrect.

(3) A and B statements are correct. (4) A and B statements are incorrect.

37. A problem caused due to the absence of decomposers in the environment is,

(1) Prevent the flow of energy through food chains.

(2) Flow of non-degradable matters through food chains.

(3) Not receiving the foods for the organisms in food chains.

(4) Not cycling the elements between the environment and the organisms.

38. A type of renewable energy use at present in Sri Lanka is,

(1) Production of electricity by wind power technology.

(2) Use the difference of temperature between the surface and the bottom of the sea to produce electricity.

(3) The technology to operate machines using alcohol.

(4) Production of power using geothermal energy.

39. The walls of a room should be prepared in which way to get the maximum efficiency of light which is supplied to a room ?

(1) Applying a white paint after polishing. (2) Applying dark paints after polishing.

(3) Applying a white paint without polishing. (4) Applying dark paints without polishing.

40. Although a peat deposit has found in Muthurajawela, what is the main reason for not using it as a fuel?

(1) It is not sufficient to use in srilanka.

(2) The sulphur content of it is being a higher amount.

(3) Muthurajawela is being a wet land.

(4) Lots of money should be expended to obtain the peat.

PROVINCIAL DEPARTMENT OF EDUCATION NORTH WESTERN PROVINCE

THIRD TERM TEST 2019

Science II

Grade 11 **Three Hours.**

Name / Index No. :

Instructions for answering

- **Use clean hand writings**.
- **Answer four questions in part A on this paper itself**.
- **Answer three questions in part B out of the five questions**. **Use separate papers to answer.**
- **After answering tie part A answer script and part B answer script together and handover**.

Part A- Structured Essays

01. A) Following table shows how two persons live in kurunegala area obtained their meal for the lunch.

	Person A		Person B	
Food material	Place of manufacture and distance		Place of manufacture and distance	
Rice	Own paddy field	01 mile	Pollonnaruwa	77 miles
Fish	Negombo	58 miles	Negombo	58 miles
Potatoes	Nuwaraeliya	74 miles	India	925 miles
Cabbage	Own home garden	00 miles	Nuwaraeliya	74 miles
Gotukola	Own home garden	00 miles	Own home garden	00 mile
Beans	Own home garden	00 miles	Nuwaraeliya	74 miles
Papaw	Own home garden	00 miles	From a estate of Wariyapola	12 miles

i. Express in short what is meant by a food mile? (02 m.)

.....

ii. Calculate the food mile of A and B persons separately.

A - ..... B - ..... (02 m.)

iii. The food mile of which person is more environmental friendly and more sustainable ?

..... (01 m.)

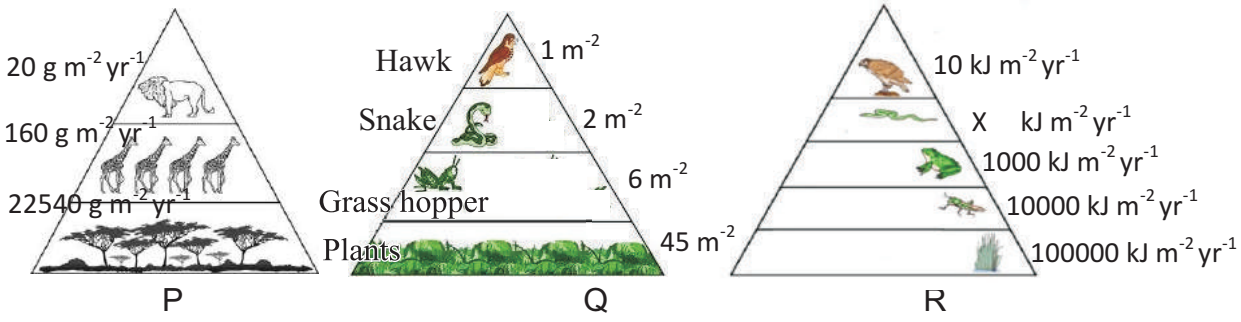
iv. Write a reason for becoming the meal of the other person less environmental friendly.

..... (01 m.)

v. The meal of which person contains the chemicals of preservations and non-degradable substances more ? (01 m.)

.....

B) Followings are 03 environmental pyramids drawn by three students to indicate the number of organisms, their bio mass and the energy relationships in each tropic level.



i. Identify and name the P, Q and R pyramids. (03 m.)

P- ..... Q- .....

R - .....

ii. In the pyramid R what is the number represented by the letter X ?

..... (01 m.)

iii. What is the pyramid which always takes the shape of upright ?

..... (01 m.)

iv. In pyramid Q name, producer, primary consumer and tertiary consumer respectively. (03 m.)

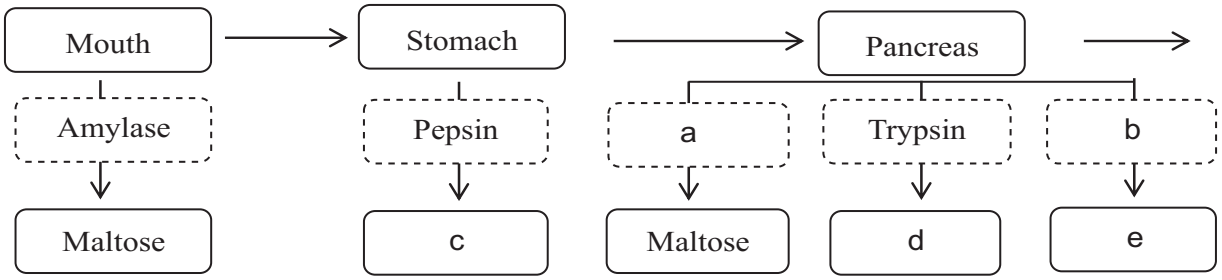
Producer - .....

Primary consumer - .....

Tertiary consumer - .....

15

02 A) Following is a flow chart related to the food digestion in the human body.



i. Name two enzymes named as a and b ? (02 m.)

a. ..... b. .....

ii. What are the digestive products indicated as c, d and e ? (03 m.)

c. ..... d. .....

e. .....

iii. Maltose further digests and turns in to the end product at the small intestine. State this digestive process takes place in the small intestine by an expression, indicating the enzyme contribute and the end product forms.

..... (02 m.)

B) Followings are few statements regarding the respiration process of human.

P. By the action of ribs and the diaphragm air exchange into and out-side the lungs.

Q. More energy is produced during aerobic respiration.

R. Although the energy is produced without oxygen , their amount of energy is less.

S. Alveoli are adapted for efficient gaseous exchange.

i. Put the suitable letters within brackets out of P,Q and R and S for the following steps of the respiration (03 m.)

a. External respiration (.....) c. Aerobic respiration (.....)

b. Anaerobic respiration (.....)

ii. Represent the aerobic respiration by a balanced equation (02 m.)

.....

iii. Write two features of alveoli for the efficient exchange of air

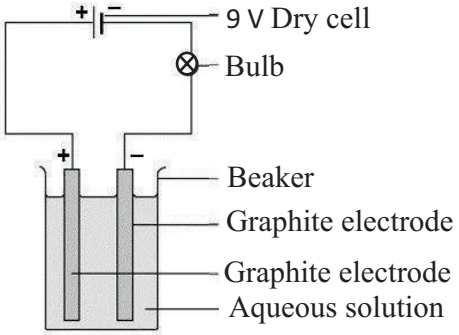
.....

..... (02 m.)

iv. Name a non- contagious disease associated with respiratory system. (01 m.)

..... 15

03. A) Following diagram shows an apparatus used in the school laboratory for electrolysis. The observations received when using this set up are shown in a chart.



Aqueous solution	Glowing of bulb	Observation near the anode	Observation near the cathode
P	Glows	Gas bubbles evolves	Gas bubbles evolves
Q	Not glows	Gas bubbles not evolves	Gas bubbles not evolves
R	Glows	Gas bubbles evolves	The immersed part turns reddish brown
S	Glows	Gas bubbles evolves	Gas bubbles evolves
T	Not glows	Gas bubbles not evolves	Gas bubbles not evolves

i. Name non electrolyte solutions out of the aqueous solutions used ?

..... (02 m.)

ii. According to the observations which solution should be the $CuSO_4$ solution?

..... (01 m.)

iii. If sodium chloride and acidulated water are used as the solutions , the hydrogen gas is evolved at the anode? or cathode?

..... (01 m.)

iv. State the method of identifying hydrogen gas in the laboratory.

..... (01 m.)

v. State all the ions present in the solution when sodium chloride solution is used as the electrolyte

..... (02 m.)

vi. Write two properties of graphite that are the reasons for using it as electrodes in electrolysis. (02 m.)

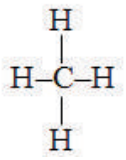
.....

.....

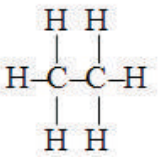
vii. Write the anodic and cathodic reactions when acidulated water is electrolyzed using this apparatus. (02 m.)

- Anodic reaction : .....
- Cathodic reaction : .....

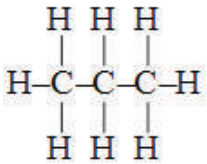
B Following are some structural formula of the hydrocarbon alkane.



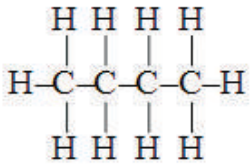
(a)



(b)



(c)



(d)

i. Write the names of alkanes represented by the structural formula a,b,c and d respectively. (02 m.)

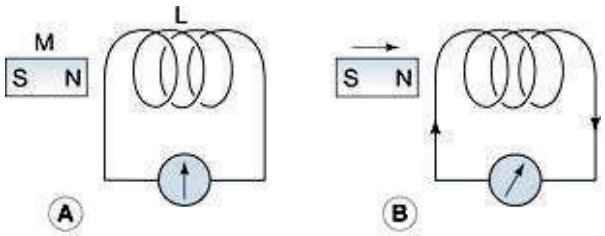
.....

ii. Draw the structural formula of chloro ethene and tetra fluoro ethene which are the derivatives of the simplest alkene ethene. (02 m.)

Chloro ethene	Tetrafluoro ethene

15

04 A) The diagram shows how a magnet and a conductor coil are used in an activity which was done to investigate the electromagnetic induction.



	Things done	Observation
A	Keep the magnet rest outside the coil	No deflection in the galvanometer
B	Move the magnet into the coil	Galvanometer deflects in the clockwise direction.
C	Keep the magnet rest in the coil	X
D	Take the magnet out from the coil	Y

i. Write the observations in X and Y situations. (02 m.)

X - .....

Y - .....

ii. State three factors that affect the magnitude of induced electromotive force in the activity. (03 m.)

a. .....

b. .....

c. .....

iii. The induced current is an Alternate current? or direct current? (01 m.)

.....

iv. Explain in brief, the difference between Alternate current and the direct current.

.....

..... (02 m.)

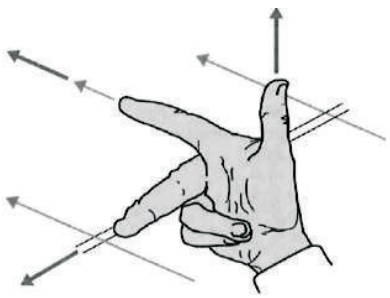
v. The diagram shows how to keep the fingers to identify the direction of induced current in a straight conductor.

a. What is the principle which is used to identify the direction of induced current? (01 m.)

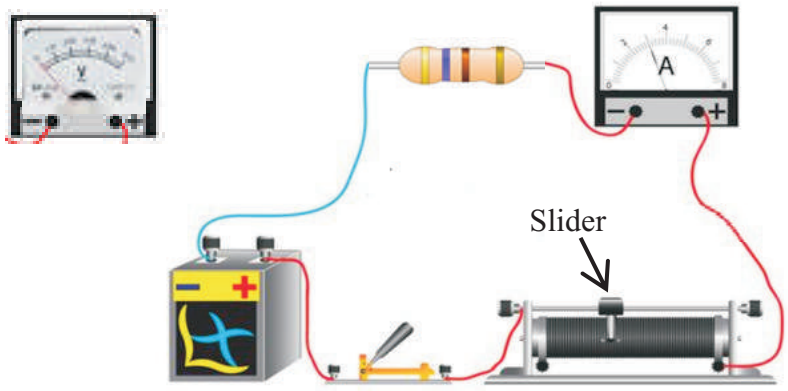
.....

b. Which finger of the hand indicate the direction of induced current? (01 m.)

.....



B) Following diagram shows a circuit which has connected an electric source, switch, rheostat, ammeter and a resistor.



i. The ammeter is connected to the circuit in series connection? or parallel connection ? (01 m.)

.....

ii. Draw how to connect the voltmeter to measure the voltage between the end of the resistor in the same diagram. (01 m.)

iii. Draw the circuit in the following box using symbols after connecting the voltmeter to the circuit. (02 m.)

iv. How the readings of voltmeter and ammeter change when moving the slider of the rheostat towards the right direction ? (01 m.)

.....

.....

15

Part B - Essay

- **Answer three questions in part B out of the five questions**.

05. A) There are various adaptations for dispersal of fruits and seeds. Following a,b,c and d diagrams show some examples for it.


(a)


(b)


(c)


(d)

i. Write the dispersal method shown in the diagram a,b,c and d and state one adaptation shown by each of them. (04 m.)

ii. State one advantage of the dispersal of fruits and seeds other than finding new habitats. (01 m.)

B) The reproduction of plants takes place sexually as well as asexually. The structure adapted in plant for reproduction is the flower.

i. Name two vegetative propagation methods which are used as an asexual reproduction method. (02 m.)

ii. Write separately the parts which are named as male gametes and female gametes of a plant? (02 m.)

iii. Followings are few steps of sexual reproduction of plants.

$$\textit{Male gamete} \xrightarrow{P} \textit{Stigma} \longrightarrow \textit{Female gamete} \xrightarrow{Q} \textit{Zygote}$$

a. Which processes are named as ***P*** and ***Q***? (02 m.)

b. if the number of chromosomes in gamete is 16 , what is the number of chromosomes in zygote? (01 m.)

c. Out of male gamete and zygote what is the structure which doesn't divide further? (01 m.)

iv. According to the number of petals of a flower, how to decide the particular plant is monocotyledonous or dicotyledonous? (02 m.)

C) Equal number of flowers were cross pollinated between the pea plants bearing green pods and yellow pods. After germinating the seeds 50 % plants had green coloured pods and50 % plants had yellow coloured pods.If the dominant characteristic is(G) and the recessive characteristic is (g)

i. State the genotype of cross pollinated plants. (02 m.)

ii. Show with a diagram how gynotypeof F_1 generation occur (02 m.)

iii. Out of the plants in F_1 generation ,the homozygous genes belong to dominant characteristic or recessive characteristic? (01 m.)

(20 marks)

06. A) Following liquids are contained in three beakers.

(P) Water ***(Q) Kerosine oil*** ***(R) Ethanol***

i. Show all the elements contained in ethanol by symbols. (01 m.)

ii. Name the two compounds which can prepare homogeneous and heterogeneous mixtures by mixing with water. (02 m.)

iii. After keeping the **prepared mixture** for some time, state an observation to identify them as homogeneous and heterogeneous mixtures. (01 m.)

iv. Which two liquids are mixed to get the total volume equals to the added volume of liquids if the equal volumes of liquids are mixed (01 m.)

v. P,Q and R are the compounds with covalent bonds. To prove that,state

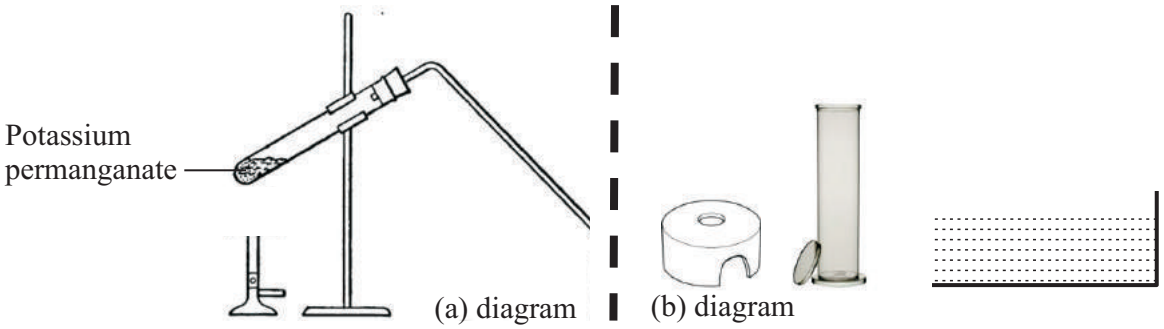
a. An observable physical feature

b. A feature which can be identified experimentally. (02 m.)

vi. Explain in brief thereasons for having inter molecular bonds between water molecules (02 m.)

vii. What is the mass of two water molecules? (H = 1, O = 16) (02 m.)

B) Diagram shows a part of an apparatus used to prepare oxygen gas by heating potassium permanganate .



i. Draw a labeled diagram to show how to connect the gas jar, delivery tube, trough, and the beehive shelf to collect the oxygen gas produced. (No need to draw theparts shown in the (a) diagram.) (02 m.)

ii. Write the balanced chemical equation relevant to the formation of oxygen gas when the potassium permanganate is heated. (02 m.)

iii. The above reaction belongs to which type of reaction based on the reactants and the product of a chemical reaction? (01 m.)

iv. State how to identify the oxygen gas produced during the reaction. (01 m.)

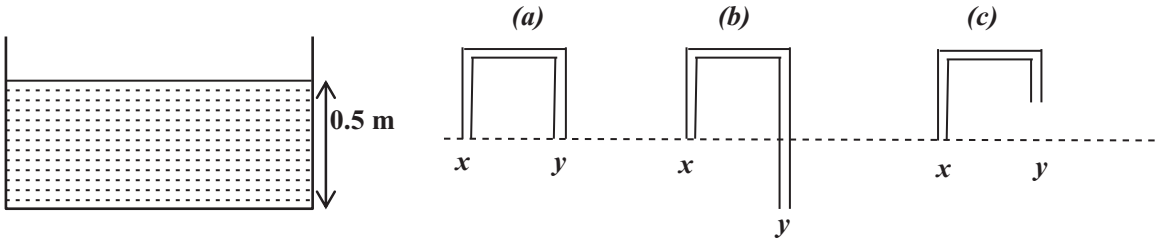
v. Draw the Lewis dot diagram of oxygen molecule. (01 m.)

vi. Write two occasions of using the **produced oxygen gas** in day-to-day life.

(02 m.)

(20 marks)

07. A) As shown in the diagram a group of students prepared thee tubes from glass as **(a), (b)** and **(c)** to remove water from a tank using syphon method. The ***x*** ends of the tubes are kept in water and ***y*** ends are kept out-side. Initially the ***(a), (b)*** and ***(c)*** tubes were filled with water and closed with the finger from **y** end so as not to remove water. Finally immersed the ***x*** ends in water and removed the finger .



i. As the above, write the observations of each situation regarding the removal of water from the tank, when the ***x*** ends of the tubes **(a),(b)** and **(c)** are immersed 0.1m in water and the finger is taken away from the ***y*** end. (03 m.)

ii. What is the pressure created on a point at the bottom of the tank due to the water in the tank and the atmospheric pressure?

(density of the liquid ρ= 1000 kg m^{-3}, g = 10 m s^{-2} , Atmospheric pressure P_0 = 10^5 Pa) (03 m.)

iii. Following changes are done when the water is removing from the tank. State whether the speed of removing water increase?, decrease? Or remains unchanged? (04 m.)

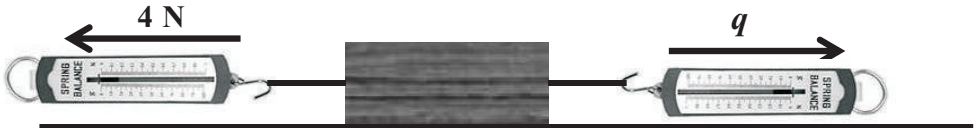
a. Immerse the ***x*** end further in water.

b. Connect a glass tube to the ***x*** end with the help of a rubber tube.

c. Connect a glass tube to the ***y*** end with the help of a rubber tube.

d. Fill water to the tank up to over flow level.

B. Two students pull a wooden block to ether sides which is kept on a smooth surface using two newton balances. The way how the forces act are shown in the diagram



i. When the wooden block is not moving,

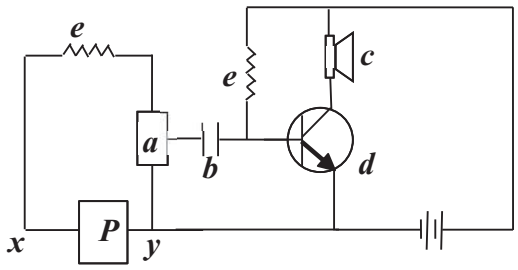
a. What is the reading of the ***q*** newton balance? (01 m.)

b. What is the resultant force acts on the wooden block? (01 m.)

c. Write two requirements that should be fulfilled to keep the wooden block at equilibrium other than the magnitude of forces. (02 m.)

ii. Give an example for an instance in day –to-day life where an object remains at equilibrium undertwo forces. (01 m.)

C) The diagram shows a circuit prepared to investigate the amplifying action of a transistor.



i. Write the names of the components which are indicated as **(a), (b), (c)** and **(d)** in the circuit. (03 m.)

ii. What is the letter indicates the signal generator in the circuit? (01 m.)

iii. ***P*** indicates a dry cell**.** As shown below, Two students have drawn how to connect the dry cell to the circuit using symbols

(a) ***x*** —|⊢— ***y*** (b) ***x*** —|⊣— ***y***

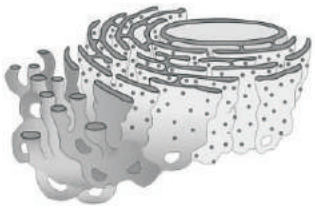
(a) What is the correct method of connecting out of (a) and (b)? (01 m.)

(20 marks)

08. A) The structural and functional unit of life is cell. The diagram shows some organelles of plant and animal cells.

x

y



z

i. Identify and name the organelles ***x*** and ***y***. (02 m.)

ii. There are two forms in organelle ***z.*** what are these two forms? (02 m.)

iii. Write the function of the small organelles without cell membranes which are connected to the surface of the organelle **z**? (01 m.)

iv. What is the organelle which is **only** present in plant cells that perform photosynthesis? (01 m.)

B. North western province is a threaten area for thalassemia disease. According to the medical records about 10% - 12% of the population of north western province are carriers.

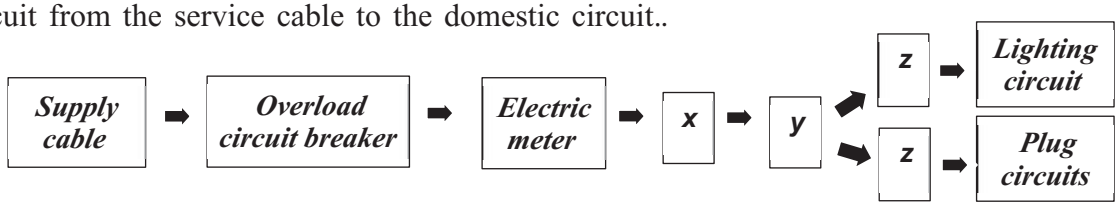
i. The inheritance of thalassemia takes place through gene linkage? or gene mutations? (01 m.)

ii. If the dominant characteristic is healthy (T) , and the recessive characteristic is (t) Write the genotype of diseased and carrier conditions. (02 m.)

iii. How to prevent the inheritance of the disease if a carrier is identified from a blood test? (01 m.)

Part B - Continuation

C) Following shows a flow chart, how the components are connected in a household circuit from the service cable to the domestic circuit..



i. Write the names of ***x, y*** and ***z*** components in the circuit. (02 m.)

ii. Supply cable contains two wires namely neutral and live wires. What are the two components which connect only the live wire out of these two wires? (02m.)

iii. In lighting circuits, the lamps are connected in series connection? or parallel connection? (01 m.)

iv. When repairing the household circuit, What is the components should be opened (off) to disconnect the electric supply. (01 m.)

v. What is the most suitable bulbs to conserve electricity out of filament bulbs, CFL bulbs and LED bulbs? (01 m.)

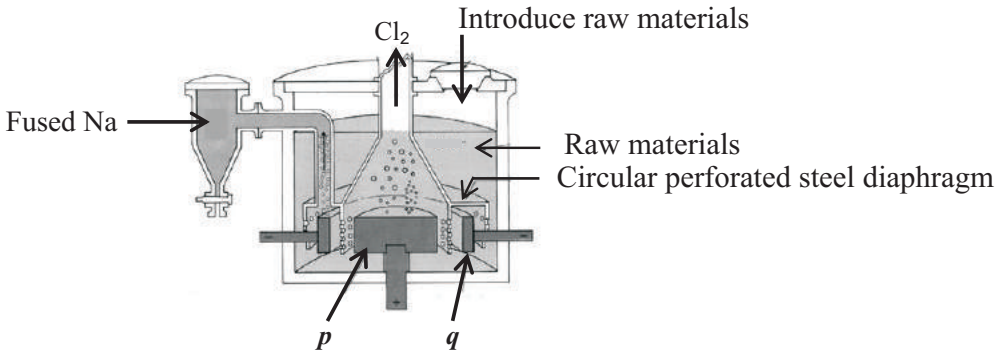
vi. If 100W bulb illuminates for 10 hours ,of a house which has 230V power supply

a. What is the amount of current flows through the filament of the bulb when glowing with a maximum brightness? (02 m.)

b. What is the number of electric units consumed (Number of kilo watt hours)When illuminate for 10 hours? (01 m.)

(20 marks)

09. A) Following is an apparatus used for the industrial extraction of sodium metal.



i. What is the name of this apparatus used to extract sodium? (01 m.)

ii. What is the raw material used? (01 m.)

iii. Write the chemical reactions takes place respectively at the **p** and **q** electrodes when the electricity is supplied (02 m.)

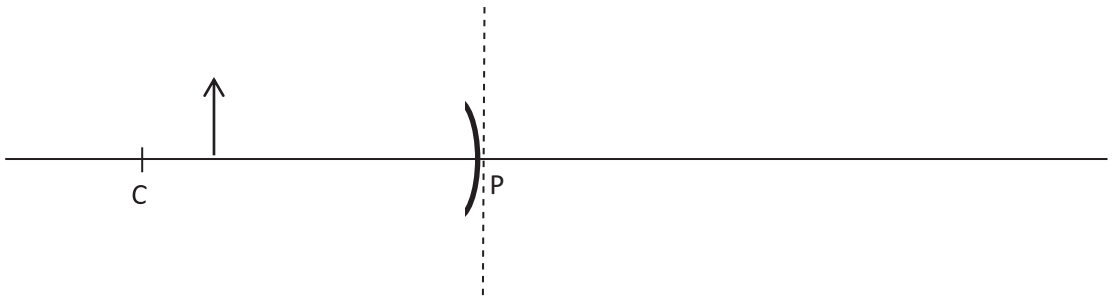
iv. Write the two elements above and below the sodium in the activity series (02 m.)

v. Is the oxide of sodium is acidic?, basic? or neutral? (01 m.)

vi. What is the number of atoms in 46g of sodium? (Na = 23) (01 m.)

vii. What is the mass of a sodium atom ?
(The value of atomic mass unit 1.66 x 10^{-24} g) (02 m.)

B) The pole of a curved mirror is named as P and the center of curvature as C in the following diagram



i. This curved mirror is belonged to which type? (01 m.)

ii. If the distance between P and C is 20cm, what is the focal length of the mirror ?

(01 m.)

iii. As shown in the diagram ,if the object is placed 15cm from the P draw a ray diagram to show the location of the image. (02 m.)

iv. Supply following information regarding the image. (03 m.)

a. size

b. Upright/Inverted nature

c. Real/Virtual nature

C) When speaking with a mobile phone, the sound of it can be heard with another mobile phone.

A

M

B

i. When the person A speaks with his mobile phone, as which type of wave the message travels to M mobile phone? (01 m.)

ii. What is the type of mechanical wave that transmit between the mobile phone M and the ear of the receiver B. (01 m.)

iii. Between which places out of A, M and B the energy was transmitted without use of a medium? (01 m.)