

සියලු ම හිමිකම් ඇවිරිණි

All Rights Reserved

All Rights Reserved

බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව மேல் மாகாணக் கல்வித் திணைக்களம் Department of Education - Western Province			
වර්ෂ අවසාන ඇගයීම ஆண்டிறுதி மதிப்பீடு - 2016 Year End Evaluation			
ශ්‍රේණිය } 10 தரம் } Grade }	විෂය } பாடம் } Science Subject }	පාඨය } විභාග පත්‍ර } I Paper }	කාලය } කාලය } 01 hour Time }

Note :

- (i) Answer all questions
 (ii) Select the most suitable answer and mark (x) in the respective box in the answer paper.

(01) The planetary model of the atom was presented by,

- (1) Ernest Rutherford (2) J. J. Thompson
 (3) Demitri Mendaleev (4) James Chadwick

(02) A monosaccharide without a sweet taste is,

- (1) Glucose (2) Fructose (3) Galactose (4) Maltose

(03) When acceleration of a body occurs,


- (1) velocity is increased (2) Displacement does not change.
 (3) Mass is increased (4) The speed is increased

(04) Which of the following phenomena is not a chemical reaction?

- (1) Rusting of Iron (2) Burning of firewood
 (3) Melting of wax (4) Solidifying of lime plaster

(05) The only living characteristic shown by virus is,

- (1) Reproduction (2) Respiration
 (3) Growth (4) Movement

(06)  The resultant force shown by the object shown in the figure is,

- (1) $\overrightarrow{11N}$ (2) $\overrightarrow{1N}$ (3) $\overrightarrow{11N}$ (4) $\overrightarrow{1N}$

(07) The atomic mass unit used at present is,

- (1) Atomic mass of $^{14}_6\text{C}$ isotope
 (2) Atomic mass of $^{12}_6\text{C}$ isotope
 (3) $-\frac{1}{12}$ of atomic mass of $^{12}_6\text{C}$ isotope
 (4) Atomic mass of $^{14}_6\text{C}$ $\frac{1}{12}$ of atomic mass $^{14}_6\text{C}$ isotope

(08) What is the minerals responsible for chlorosis in leaf veins and the regions near veins the?

- (1) N (2) P (3) S (4) Ca

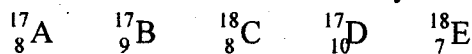
(09) In a certain body in motion has a kinetic energy of 18J. If the velocity of it is 3ms^{-1} , the mass of the object is,

- (1) 4kg (2) 6kg (3) 8kg (4) 12kg

(10) The double membranous organelle acting as a powerhouse in a cell is,

- (1) Chloroplast (2) Golgibodies (3) Nucleus (4) Mitochondria

(11) Select the isotope elements mentioned below. Given symbols are not standard symbols

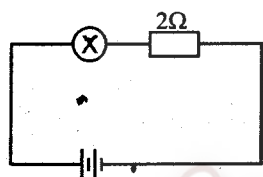


- (1) A and B (2) A and C (3) C and E (4) A and D

(12) Select the answer in which the botanical name of the mango plant is denoted correctly

- (1) Mangifera indica (2) mangifera Indica
(3) Mangifera indica (4) Mangifera Indica

(13) In which of the instances below, can the glow of the bulb in this circuit be increased?



- (1) When one more 2Ω resistor is used in series to the 2Ω resistor
(2) When one more 2Ω resistor is used in parallel to the 2Ω resistor
(3) When one more bulb is used in series to the bulb in the circuit
(4) When the overall equivalent resistance of the circuit is increased.

(14) Not a characteristic of coconut plant

- (1) having a fibrous root system (2) having a flowers of multiples of three
(3) showing a secondary growth (4) having a parallel venation

(15) Select the response in which the chemical formula of Aluminium oxide is correctly written.

- (1) AlO (2) Al_3O_2 (3) Al_2O_3 (4) AlO_2

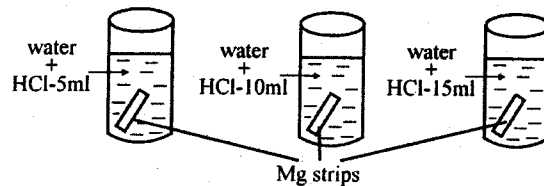
(16) The disease sexually transmitted and infected by Human Immuno deficiency Virus, (HIV) is

- (1) Gonorrhoea (2) Syphilis (3) Herpes (4) AIDS

(17) Which is the most accurate statement among the statements given below?

- (1) Atmospheric pressure can lift a maximum water column of 76cm.
(2) Atmospheric pressure takes a higher value in the mountain.
(3) The value of mercury barometer near the coastal region is 760mm.
(4) Altitude has no effect on atmospheric pressure.

- (18) Similar pieces of Mg strips are put into three test tubes, at once. In which of the following shows the effect of rate of reaction?



- (1) the effect of the surface area of the reactants
- (2) the effect the temperature at which the reaction occurs.
- (3) the effect of the concentration of the reactants.
- (4) the effect of catalysts.

- (19) When a certain object is vertically tossed from the ground in a certain velocity reaches a maximum height in 5 seconds. What will be the initial velocity of the object? (Gravitational acceleration = 10ms^{-2})

- (1) 20ms^{-1}
- (2) 30ms^{-1}
- (3) 40ms^{-1}
- (4) 50ms^{-1}

- (20) Select the answer relevant to relative atomic mass of the molecule H_2SO_4

(H=1 S=32 O=16)

- (1) 7g
- (2) 98g
- (3) 128g
- (4) 196g

- (21) The fertilized egg is known as

- (1) Blastula
- (2) Morula
- (3) Zygote
- (4) Foetus

- (22) Single displacement reaction is,

- (1) $\text{Zn} + \text{CuO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$
- (2) $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
- (3) $\text{CaCl}_2 + \text{Na}_2\text{CO}_3 \rightarrow \text{CaCO}_3 + 2\text{NaCl}$
- (4) $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2$

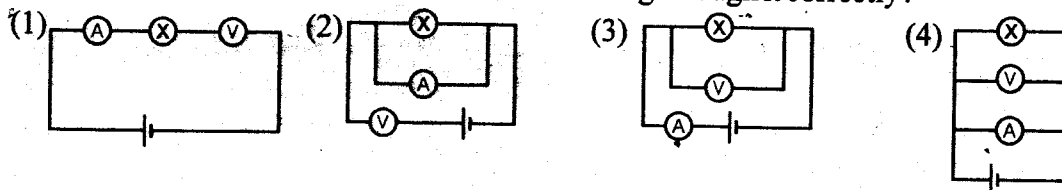
- (23) A requirement for an object to be in balance against three parallel forces is

- (1) The three forces being collinear
- (2) The three forces being coplaner
- (3) The three forces being equal in magnitude
- (4) The three forces being perpendicular to one another.

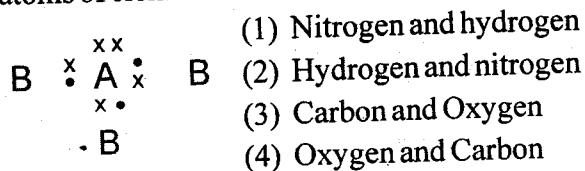
- (24) What is the Vitamin contained in 'Ransahal', which is produced using gene technology?

- (1) Vitamin C
- (2) Vitamin A
- (3) Vitamin D
- (4) Vitamin B

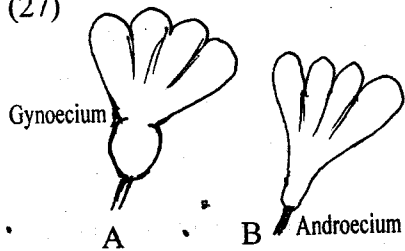
- (25) Which of the circuits given below arranged to measure, potential difference between the two terminal of the bulb and and the current flowing through it correctly?



(26) Shown here is a dot cross diagram of a covalent bond formed by combination of two atoms of element. Select the answer denoting A and B respectively.



(27) Shown in the figure are two flowers of a pumpkin plant. Accordingly the adaptation shown by that plant in order, for the pollination could be.



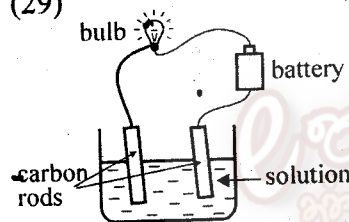
- (1) having self sterility
 (2) having unisexual flowers.
 (3) Dichogamy
 (4) Hercogamy

(28) Of the instances given below, what is the instance acted in order to increase the friction?

- (a) In writing, the position held by hand is roughed
 (b) Cutting grooves in foot wears and vehicle tyres
 (c) Using bearings for places that turn in machines
 (d) Putting talc powder on the surface of the carrom board.

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

(29) If the bulb of the above set up is to be lighted up, which group of solution can be used as the solution?



- (1) Sodium chloride or glucose solution
 (2) Sugar solution or Sodium chloride solution
 (3) Sodium chloride or copper sulphate solution
 (4) Copper sulphate solution or glucose solution

(30) ♦ Eukaryotic

- ♦ Live in moistured environments
- ♦ Autotrophic as well as heterotrophic forms, are found

The group of organism having all the above characteristics is,

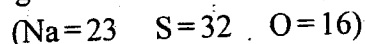
- (1) Fungi (2) Bacteria (3) Viruses (4) Protistants

(31) Which of the following is an instance where static electricity is seen?

- (a) In ironing silk cloth
 (b) Near a CRT television screen
 (c) In seperating new polythene membranes
 (d) When rubbing a metal strongly

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

(32) What is the amount of sodium sulphate needed to obtain 0.1 mole of sodium sulphate in gramme

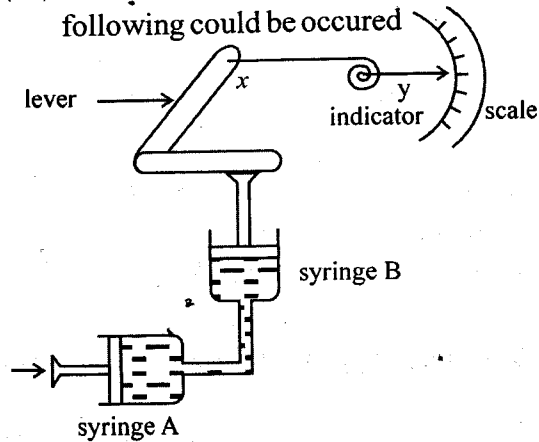


- (1) 1.42g (2) 14.2g (3) 142g (4) 1420g

(33) The dominant gene responsible for haemophilia is H while the recessive gene is h. The haemophilia carrier is,

- (1) x^Hx^h (2) x^Hx^H (3) x^Hy (4) x^hy

(34) After the setup arranged as in the figure, when the syringe A is pressed, which of the following could be occurred



- (1) The piston of syringe B going down
 (2) The lever X moving to right
 (3) The indicator y deflecting downwards
 (4) The indicator y deflecting upwards

(35) A. Statement and a reason relevant to production and collection of hydrogen gas in the laboratory are given below.

Statement - The gas is collected by downward displacement

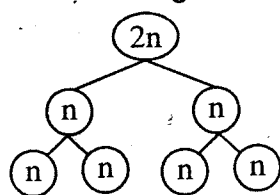
Reason - Hydrogen is denser than ordinary air.

- (1) Statement is correct Reason is incorrect
 (2) Statement is incorrect. Reason is correct
 (3) Statement and reason are correct
 (4) Statement and reason are incorrect

(36) Mass of two objects named A and B are m and 2m respectively. What is the correct statement given below about their velocities, if the objects maintain equal momentum,?

- (1) Velocity of B is higher than that of A
 (2) Velocity of A is higher than that of B
 (3) Velocities of A and B are equal
 (4) Data given are not adequate to express about velocity.

(37) Out of the cells given below, Which type of cells can have the method of cell division according to the figure.



- (a) Epithelial cells in mouth cavity
 (b) Ovum mother cells
 (c) Sperm mother cells
 (d) Smooth muscle cells

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

(38) Consider the statements about Newton's laws.

- (a) Until unbalanced forces are exerted, the objects at rest stay at rest.
 (b) Force acted on an object is directly proportional to the acceleration created on it.

(c) The mass of an object is inversely proportional to the acceleration created in it.

(d) Actions and the reaction are equal in magnitude and in direction.

Correct statements are

(1) a and b only

(2) b and c only

(3) c and d only.

(4) a and d only.

(39) A, B, C are 3 metals.

Salt solution of A + C \longrightarrow Salt A + C

Salt solution of B + A \longrightarrow Salt B + A

According to nature of reactions above, when the metals A, B, C are arranged according to the position in the reactivity series in descending order are

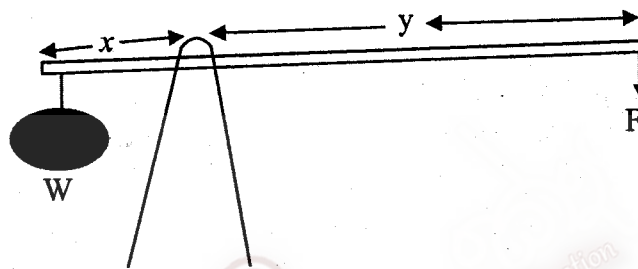
(1) A, B, C

(2) C, A, B

(3) B, C, A

(4) B, A, C

(40) In some of the railway crossings in Sri Lanka bamboo gates have been installed. The diagram of it is denoted below.



Which of the statements given below is mostly correct, with regard to the operation of the gate?

(1) The increase of the weight W does not help in lifting the gate

(2) When length of y is less than that of x , the force F can be made to decrease.

(3) When the length of x is more than that of y , the force F can be made to decrease.

(4) The relation between the weight W and the magnitude of the force F is $W < F$.

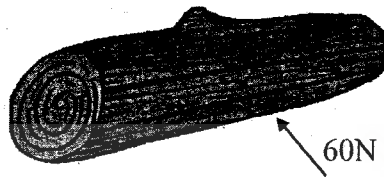
බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව Department of Education - Western Province	බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව මேல் மாகாணக் கல்வித் திணைக்களம் Department of Education - Western Province	බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව Department of Education - Western Province	
වර්ෂ අවසාන ඇගයීම ஆண்டிறுதி மதிப்பீடு - 2016 Year End Evaluation			
ශ්‍රේණිය } 10 தரம் } Grade }	විෂය } Science பாடம் } Subject }	පත්‍රය } II வினாத்தாள் } Paper }	කාලය } 03 hours காலம் } Time }
Name		Index No.	

Important:

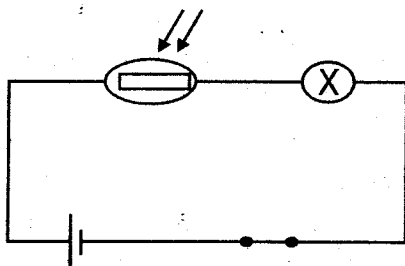
Answer all questions of part "A" in the given space. Answer three questions of part "B" Submit answer papers for parts "A" and "B" together.

Part A - structured essay

(01) (A) The figure below shows as to how a force is exerted to push a large log.



- (i) When a force of 60N was exerted the log, did not move. Due to which force acted against the force exerted was responsible for it?
..... (01 marks)
- (ii) The log began to move. in addition to the force 60N, when a force of 40N parallel to it was exerted What is the name given to the force acting against the force exerted on that instance?(01 marks)
- (iii) What is the resultant force acted on the system? When the additional force too was exerted in the instance II above (02 marks)
- (iv) Write an example each for the instances below where resultant forces are used in day to day life.
 - (a) Resultant of two collinear forces acting along the same direction
.....
 - (b) Resultant of two collinear forces acting along opposite directions
..... (02 marks)
- (v) Shown below is a circuit arranged to demonstrate the light sensitive resistor. When light and when dark fall on it.

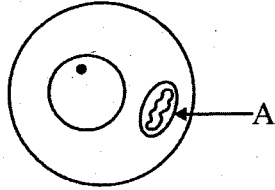


- (a) What is the observation that can be made in the bulb?
.....
..... (01 mark)
- (b) Explain the reason for that observation.
.....
..... (01 mark)

- (vi) The phenomena observed in day to day can be explained by the Newton's laws. Which Newton's law can be applied to the rotations of earth around the sun?

.....

- (B) (i) A is an organelle of a cell. Name A.



.....

- (ii) Aerobic respiration occurs in A. How can the gas used above identified in the laboratory?

.....

- (iii)



- (a) Write a feature of liveliness that can be observed in the plant denoted in the figure?

- (b) Mention another feature of liveliness that is not observed in this.

- (iv) Name two organisms that fulfill the characteristics common to all animals from a single cell.

- (02) (A) The living matter consists of biological molecules such as carbohydrates, protein Lipid, Nucleic acid.

- (i) What is the type of specific protein that stimulates bio chemical reactions of organisms?

- (ii) When an equal volume NaOH and a few drops of CuSO_4 are added to a food extract a dark blue colour appeared. Name that bio molecule and name an item that can be prepared the food extraction

..... (02 marks)

- (iii) Name two specific features possessed by water related to life.

.....

..... (02 marks)

- (iv) When Nimal put some rice into his mouth and chewed, he felt a sweet taste.

- (a) What is the enzyme responsible for the sweet taste?

..... (01 mark)

- (b) Name the bio molecule abundantly contained in rice.

..... (01 mark)

- (c) As which polysaccheride is that bio molecule stored in animals?

..... (01 mark)

(B) The life process that gives rise to a new generation an existing generation is called reproduction.

(i) A large quantity of small Karapincha plants (curry leaves) were seen around mother plant.

(a) What is the method of reproduction seen in the above mentioned plant?

(b) What is the artificial method of vegetative reproduction followed to obtain a plant clone at once?

(ii) Write two requirements of the fruit and seed propagation.

(C) (i) Write two hereditary characteristic features commonly found among humans.

(ii) Name a genetic disorder due to sex linked inheritance

(03) (A) A part of a periodic table is given below. The symbols given are not standard symbols. Provide answers in association with the given symbol.

							A
	B				C		
D						E	
	F						

(i) Write the electronic configuration of the element B.

(ii) Name the letter that represents a noble gas.

(iii) Mention the group and period to which, the element E belongs.

(iv) Mass number of the element D is 23. Denote the number of electrons and neutrons in order.

(v) What is the element which has highest ionization energy out of B and F

(vi) Which element is the most electronegative out of B and C

(B) Mole is the unit used to measure the amount of matter.

(i) The number of moles in a substance is n, mass of the substance is m and the molecular mass of it is M. Build up a formula denoting the relationship among M, m and n.

(ii) Calculate the number of moles in 24g of C, using the formula which you have built up, (Molecular mass of C is 12g mol^{-1})

.....
.....

(iii) The relative molecular mass of a certain element is 28. What is the number of atoms in 56g of it?

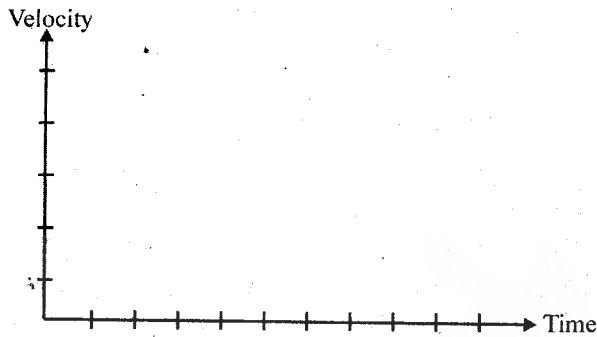
.....
.....

(iv) Find the number of Oxygen atoms in 5 moles of Carbon dioxide molecules.

.....

(04) (A) An object starting from rest, acquires a velocity of 40ms^{-1} for 6 second. Then the object moves that velocity for 20s and comes to the rest in 5s.

(i) Complete the velocity time graph relevant to the above information.



(ii) Calculate the acceleration occurred during the first 20s in the above motion.

.....

(iii) If the mass of the above object is 800g, find the unbalanced force exerted for the acceleration.

.....

(B) (i) (a) Define momentum.

.....

(b) Calculate the momentum possessed by stone pebble with 50g and moving with a velocity of 30ms^{-1} , when it is shot with a catapult.

.....

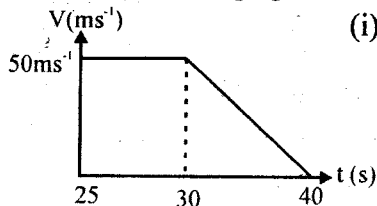
.....

(ii) Write down Newton's third law.

.....

.....

(C) The velocity time graph of a vehicle in motion is given below.



(i) Explain the displacement occurred during 25 seconds to 40 seconds.

.....

.....

.....

(ii) Calculate the displacement from 25 seconds to 40 seconds.

.....

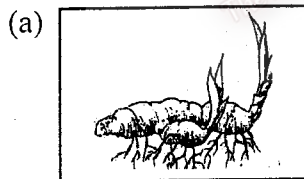
.....

*** Answer three question only**

(05) Separating organisms into groups according to common characteristics is termed as classification of organisms.

- (A) (i) Write one use of classification of organisms.
 (ii) Write two advantages of natural classification.
 (iii) Name 3 major domains.
 (iv) Write an example for a seed plant and seedless gymnosperm respectively.
- (B) The results obtained from hybridization of pea plants of purple colour flowers and white colour flower were purple colour
- (i) Using the purple colour as P and white colour as p, denote how the F₂ generation is formed using a punnett square.
- (ii) Write down the phenotypes and genotypes of this
- (iii) What is the artificial amino acid banned due to harmfulness to the body, formed as a product of gene technology?
- (iv) Plant is propagate by various methods.

Name the type of underground stems given below.



Ginger



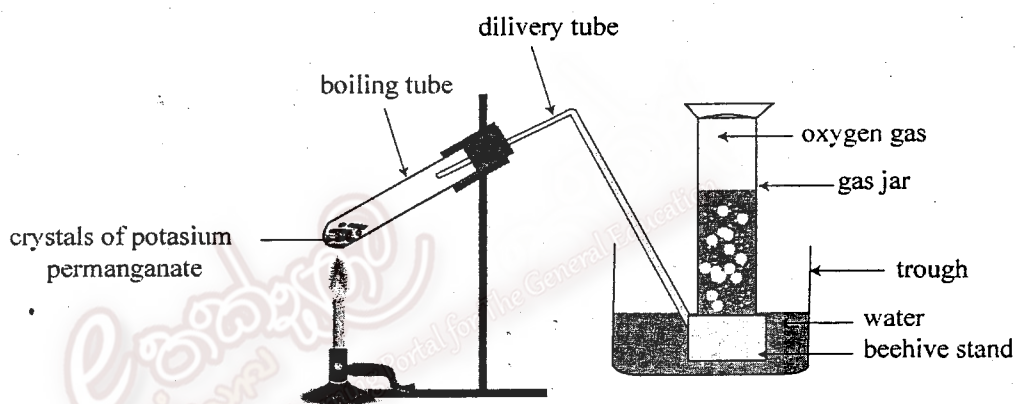
Colocasia

(C) The building unit of life is the cell.

- (i) Write down three features that differ an animal cell from a plant cell
- (ii) Name the two main phases that divide the changes in the menstruation cycle.

(06) (A) A few activities carried out in the laboratory to demonstrate chemical reactions are as follows.

- (a) Adding the metal aluminium to dilute hydrochloric acid.
 - (b) Burning a magnesium strip in air.
 - (c) Heating potassium permanganate.
 - (d) Adding sodium sulphate to barium chloride solution.
- (i) Name the reactions shown above as combination, decomposition, single displacement and double displacement.
- (ii) Write down the balanced chemical reaction relevant to the reaction between dilute hydrochloric acid and the metal aluminium.
- (iii) A set up arranged to produce oxygen gas at the laboratory is given below.



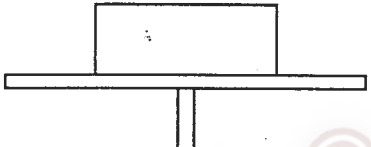
Name two other chemical substances that can be used to produce oxygen gas, instead of potassium permanganate in this reaction.

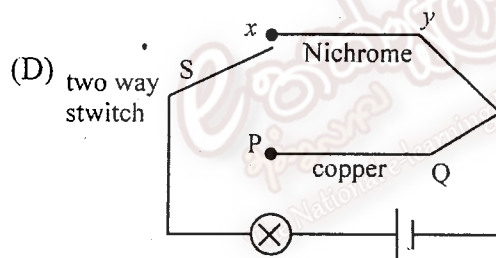
- (B) (i) Define the rate of reaction
- (ii) Write down one example each for a comparatively slow and fast reaction.
- (C) (i) Denote the nature of the charge of ions formed by atoms given below based on the electronic configurations.
- Cl, Na, Mg
- (ii) Draw the Lewis structures of the covalent compounds denoted below.
- Cl_2 , NH_3
- (iii) What is the reason for the formation of inter molecular attractive forces of water?

- (07) (A) A man pushes a certain body for a distance of 20m exerting a force 300N. He takes 10 seconds for it.
- Calculate the work done by him.
 - Find the rate of work done by him
 - That body has a mass of 70kg. When it is immersed in water, it is partially submerged and floating. If so, find the upthrust exerted on that body.
($g = 10\text{ms}^{-2}$)

- (B) (i) Hydrometer is used to measure the density of liquids. Write down two special instances where hydrometer is used.
- What is the property of hydrometer in functioning of it.
 - A hydrometer is vertically immersed in a vessel of water. Salt is gradually dissolved in to that water. What is the change of location of that hydrometer?

- (C) A student makes a barometer using a liquid with the density of 5000kgm^{-3} . The atmospheric pressure in that area is 95000Nm^{-2} .
- What is the height of the liquid of that barometer made by him?
($g = 10\text{ms}^{-2}$)

- (ii)  The above set of apparatus had been placed on a table as shown in the figure. Copy the diagram and mark the forces act on it.



- What is the place where S should be connected to get the maximum brightness of the bulb?
- What is the reason for the answer you gave in (i) above?
- If the diameters of the wires XY and PQ are increased, what would happen to the brightness of the bulb?

- (08) There are two parts as vertebrates and invertebrates in the kingdom Animalia.

- (A) (i) Among the organisms centipede, hydra, rat, cockroach, frog

- name two vertebrates
- name two invertebrates

- (ii) Cell \rightarrow organs \rightarrow \rightarrow organism According to the above organization arrangement, write the answer that suits in the relevant boxes.

(B) (i) Cells possessed by organisms are divided by the methods meiosis and mitosis. Write down two differences between meiosis and mitosis.

(ii) Name two types of cells that can be seen when a lower epidermal tissue of a dicotyledonous leaf is observed through a light microscope.

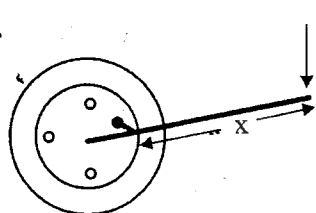
(C) A couple force is exerted when turning rough and fine adjustments in a microscope.

(i) Name two instances where couple force is used in day to day life.

(ii) When using rough and fine adjustments in the microscope to which should a lower power be applied?

(iii) Write down two requirements that should be there for an object to be at equilibrium under three forces which are not parallel.

(D) The diagram shows how a force is exerted on a screw nail in a vehicle tyre.

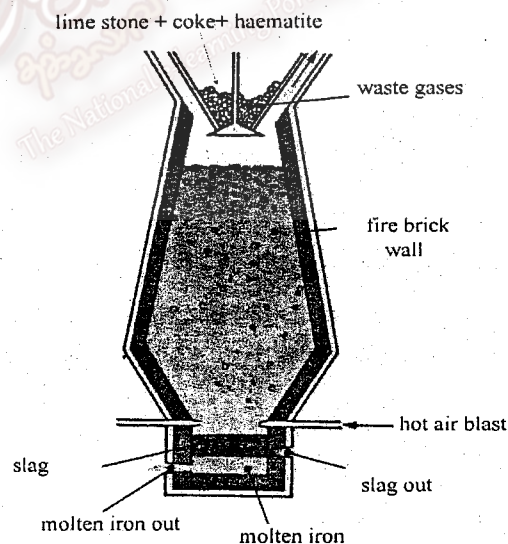


(i) According to the diagram say whether the screw nail is removed or tightened?

(ii) Write 2 methods that can be applied to increase the momentum of that

(iii) Hydraulic jacks are used in transferring pressure. in lifting the vehicles. Mention 2 other instances where transmitting pressure is used.

(09) (A) A blast furnace used in the extraction of iron is shown below.



(i) According to the position of the metal iron in the activity series, which method is used as the method of extraction?

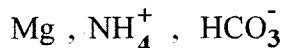
(ii) write down three major reactions occurring in the blast furnace. When extracting iron using hematite

(iii) State the method by which Na can be extracted, based on the position of it in the activity series.

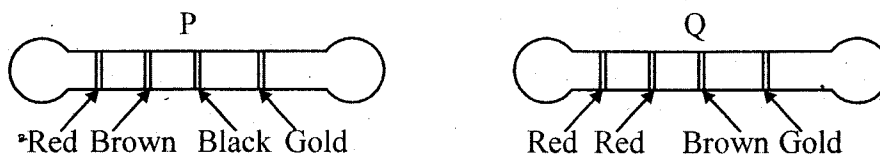
(B) Identify the elements according to the characteristic given below - and write down the name of that element.

- (i) (a) Silvery ash colour, burns with a bright white flame when heated in air.
(b) a free diatomic gas. Industrially used to produce ammonia. Reactive tendency is low.

(ii) Write down the valencies of the elements and ion groups (radicals) given below.



(C)



Black - 0

Brown - 1

Red - 2

Gold - 5%

- (i) A resistance of 231Ω should be applied to a certain circuit. Which of the resistance out of P and Q above is more appropriate for that purpose?
- (ii) The scientist George simon Ohm has put forward a law in order to find the electric current flowing through a circuit.
- (a) Write down the equation relevant to that law.
- (b) When a potential difference 24V across a resistance of 3Ω is applied, find the current flowing through it.
- (D) (i) A ball with mass 50g is placed on a rack of which the height is 2.5m. Calculate the potential energy stored in it. ($g = 10\text{ms}^{-2}$)
- (ii) Write down two instances in day to day life. where elastic potential energy is stored.