6285

15.11.2016

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மேல் மாகாணக் கல்வித் திணைக்களம்
Department of Education - Western Province

වර්ෂ අවසාන ඇගයීම
ஆண்டிறுதி மதிப்பீடு - 2016
Year End Evaluation

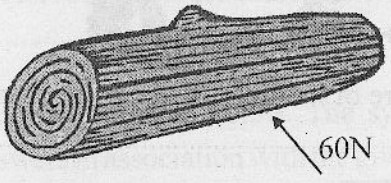
ශ්‍රේණිය தரம் Grade	10	විෂයය பாடம் Subject	Science	පත්‍රය வினாத்தாள் Paper	II	කාලය காலம் Time	03 hours

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)

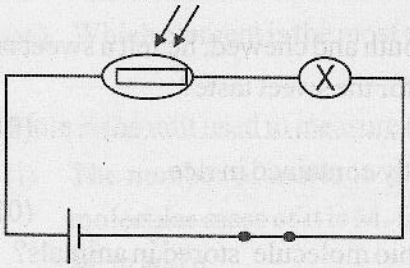
(iii) What is the resultant force acted on the system? When the additional force too was exerted in the instance II above ..... (02 marks)

(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.



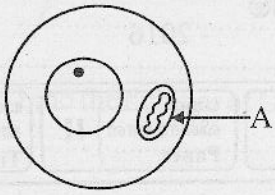
(a) What is the observation that can be made in the bulb?
.....
..... (01 mark)

(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 oranelle of a cell. Name A.

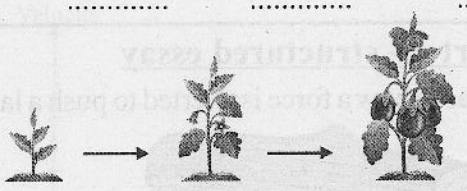


.....

(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 lionization 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 relation ship 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 12gmol^{-1})

.....

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

.....

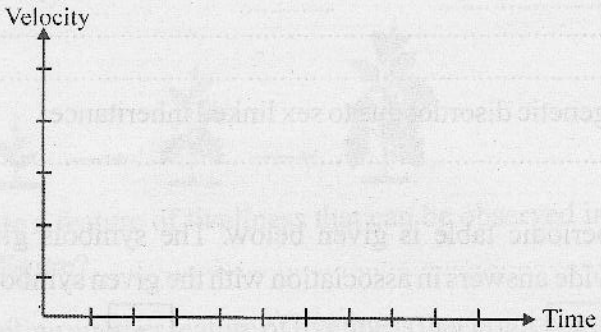
.....

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

.....

(04) (A) An object starting from rest, acquries 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 occured 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 catapault.

.....

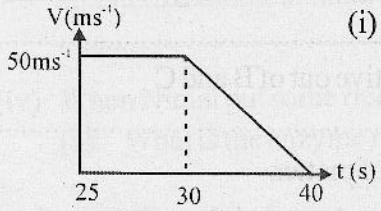
.....

(ii) Write down Newton's third law.

.....

.....

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



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

.....

.....

.....

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

.....

.....

Paper II

PART - B (essay)

6290
15 - 11 - 2016
Grade 10
Science

*** Answer three question only**

(05) Seperating 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 hybradization 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 F_2 generation is formed using a punnett square.

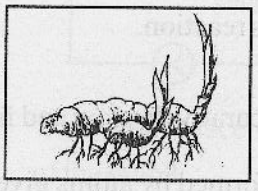
(ii) Write down the phenotypes and genotypes of this

(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.

(a)



Ginger

(b)

Colacasia

(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.

80

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

(a) Adding the metal aluminium to dilute hydrochloric acid.

(b) Burning a magnesium strip in air.

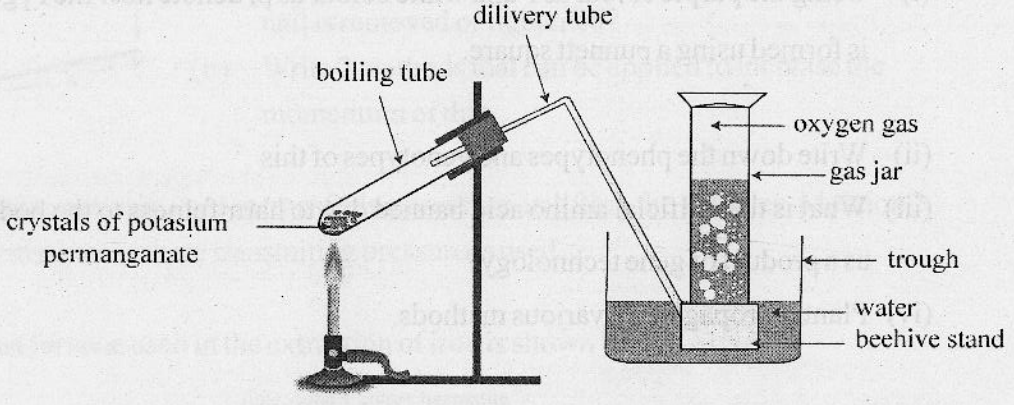
(c) Heating potasium permanganate.

(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 produces oxygen gas, instead of potasium 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.

(i) Calculate the work done by him.

(ii) Find the rate of work done by him

(iii) 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. ($g = 10ms^{-2}$)

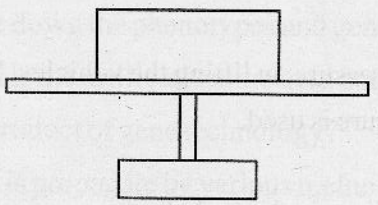
(B) (i) Hydrometer is used to measure the density of liquids. Write down two special instances where hydrometer is used.

(ii) What is the property of hydrometer in functioning of it.

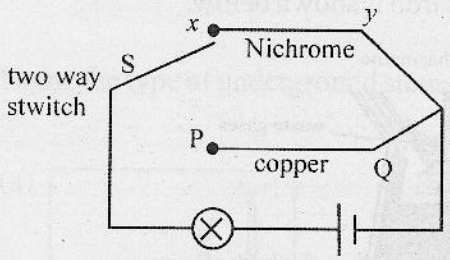
(iii) A hydrometer is vertically immersed in a vessel of water. Salt is gradually dissolved in to that water. What is the change of location of that hydrometer?

(C) A student makes a barometer using a liquid with the density of $5000kgm^{-3}$ The atmospheric pressure in that area is $95000Nm^{-2}$.

(i) What is the height of the liquid of that barometer made by him? ($g = 10ms^{-2}$)

(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.

(D) 

(i) What is the place where S should be connected to get the maximum brightness of the bulb?

(ii) What is the reason for the answer you gave in (i) above?

(iii) 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

(a) name two vertebrates

(b) name two invertebrates

(ii) Cell ⟶ [x] organs ⟶ [y] ⟶ 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 meosis and mitosis. Write down two differences between meosis 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.

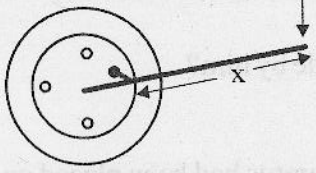
(C) A couple force is exerted when turning rough and fine adjustments in a microscope.

(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.

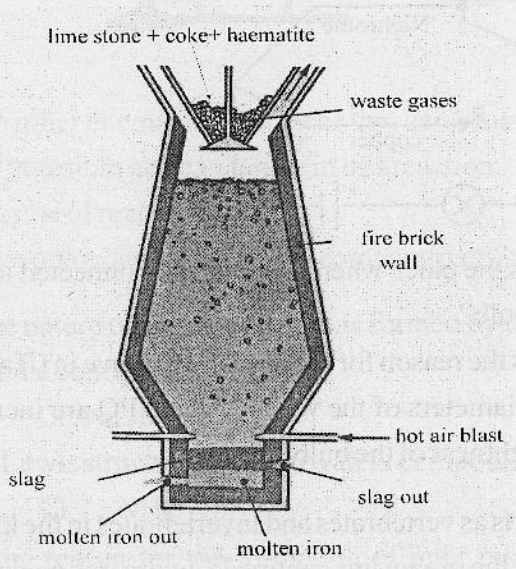


(i) According to the diagram say whether the screw nail is removed or tightened?

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

(iii) Hydrolic jacks are used in transfering pressure. in lifting the vehicles. Mention 2 other instances where transmiting 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 occuring 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.

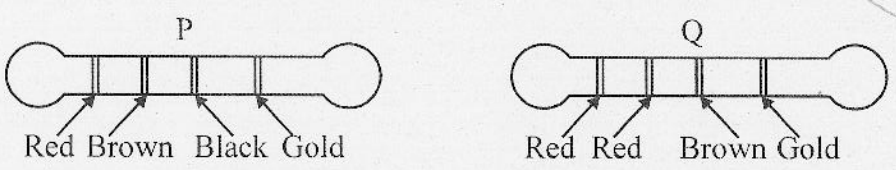
(i) (a) Silvery ash colour, burns with a bright white flame when heated in air.

(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.

Mg , NH_4^+ , HCO_3^-

(C)



Black - 0 Brown - 1 Red - 2 Gold - 5%

(i) A resistance of 231Ω should be applied to a certain circuit. Which of the resistence 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. ($g = 10ms^{-2}$)

(ii) Write down two instances in day to day life. where elastic potential energy isstored.