

5. (A) Figure A and B show two steps off human respiratory process.

(i) Name A and B (02)

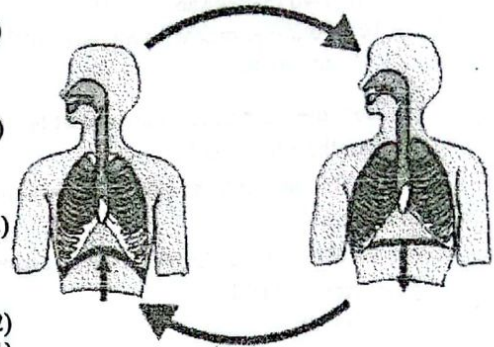
(ii) Name two types of muscles which are important in process A and B (02)

(iii) Write two changes that occur in the air as it enters the nasal cavity and moves into the lungs (02)

(iv) Mention two adaptations of the respiratory surface for efficient air exchange (02)

(v) Write balance chemical equation of aerobic respiration (01)

(vi) Mention one precaution that can be used to prevent diseases related to the respiratory system (01)



(B) The figure shows an apparatus prepared to examine the factors affecting the photosynthesis process .one leaf is covered with black paper and other is covered with two glasses (no black papers) This apparatus was kept in a dark place for 48 hours and then exposed to sunlight for a few hours.

(i) Which factor affects for photosynthesis can be tested from this apparatus (01)

(ii) What is expected from placing the apparatus in dark for about 48 hours (01)

(iii) Starch test was done for two leaves separately state the colours produced when

iodine solution is added to the following leaf sections

(a) Part of the leaf covered with glasses with black paper (01)

(b) Part of the leaf covered with glasses without black paper (01)

(c) A part of leaf not covered by the glasses (01)

(iv) Write the word equation and balanced chemical equation related to the process photosynthesis (02)

(v) Draw a labeled diagram to prove that oxygen released out as the end product photosynthesis (01)

(vi) State two ways in which photosynthesis is important to the survival of the living world (02)



(20 Marks)

6. (A) Below are the electron configuration of some of the elements in the first 20 elements of the periodic table.

Element	A	B	C	D	E	F	G	H	I
Electron Configuration	2,1	2,2	2,4	2,6	2,7	2,8	2,8,1	2,8,2	2,8,3

(i) Name 2 elements belong to the first group of the periodic table (02)

(ii) Name an element belong to the second period of the periodic table (01)

(iii) Write one element each that forms a monovalent positive ion and a monovalent negative ions respectively (02)

(iv) Write the formula of the compound formed by combining G and F (01)

(v) Draw a suitable graph to show the variation of the first ionization energy of the above elements (02)

(B) The table below shows some of the equipment and chemical use in the laboratory

(i) Select

- (a) A chemical
- (b) Two metals and
- (c) Four equipment / materials suitable for preparing a simple cell (03)

(ii) State the electrodes where oxidation and reduction take place in the simple cell (02)

(iii) Write down the cathodic half reaction takes place in the simple cell (01)

(vi) write down the chemicals use to prepare the following gases from the table.

- (a) O_2
- (b) CO_2
- (c) H_2 (03)

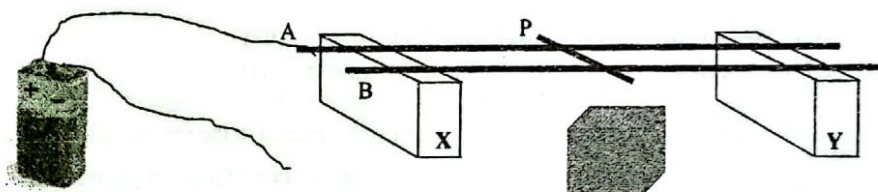
(v) Draw the labeled diagram to show how oxygen gas produce using the things given in the table (02)

(vi) Name the identifications test for oxygen (01)

Equipment	Chemicals
Boiling tube	Dil. H_2SO_4
Rubber stopper with a hole	Dil.HCl
Conducting wires	$CaCO_3$
Glasses tubes	$Ca(OH)_2$
Toothed clips	Zn
Beaker	Mg
Milli ammeter	Cu
Gas jar	$KMnO_4$
Trough	
Beehive shelf	

(20 Marks)

7. (A) Following setup demonstrates the magnetic force acting on a current carrying conductor placed in a magnetic field .Two uniform wires A and B are placed on two wooden blocks named X and Y .Another uniform conducting wire (p) was placed over the two wires and a strong magnet was placed under it.



- (i) Select the suitable metal for conductors A and B out of iron and copper (01)
- (ii) When the negative terminal of the battery is connected to wire B the conductor (p) moved towards Y
 - (a) Which of Fleming's law is used to determine the direction of motion of the conductors (01)
 - (b) Explain the above law (02)
 - (c) Which magnetic pole is closer to the conductors (02)
- (iii) State two factors which affect the force induced in the conductor (02)
- (iv) Write the one device each that uses electromagnetic force in the following way (02)
 - (a) As a periodic motion
 - (b) As a rotational motion

(B) Below is a diagram prepared to demonstrate the action of a transformer

- (i) What is the special feature that should be present in the wire of a conductor used to form the coil (01)

(ii) Which is the primary coil out of P and Q (01)

(iii) Name the point which should be paid more

Attention when connecting two LED bulbs to coil "P" (01)

(iv) Write down the observations in LED when ,

(i) Switch on

(ii) Keep switch on

(iii) Switch off the switch connected to coil Q (03)

(iv) Mention two suitable changes that can be done increase the light intensity of LED (02)

(v) Find the voltage given by LED if the number of turns in P is 600 ,number of turns in Q is 300 and voltage of the circuit is 1.5 v (02)

(20 Marks)



8. (A) P,Q and R show living tissues.

(i) Identify above tissues and separate them as plants

Tissues and animal tissues (02)

(ii) Write down one main function of each tissue (03)

(iii) Name an organ where tissue "P" is present (01)



(B) Thalassemia is an inherited disease commonly seen in

North western province .Recessive condition (t) is diseased and dominant conditions (T)is healthy

(i) What is the genotype of a thalassemia patient (01)

(ii) Explain the possible offspring of a marriage between a thalassemia carrier women and a carrier man using a Punnett square (02)

(iii) A student said that marriages between blood relatives cause thalassemia .Explain the above statement (01)

(C) When an egg is placed in water it sinks but when it is placed in salt water it floats.

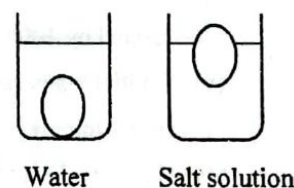
(i) What are the two external forces acting on the egg in the salt solution (02)

(ii) If more salt dissolve in salt solution, the amount of egg folates is more

(a) Which quantity increases the flotation (01)

(b) Does the volume of fluid displaced increase or decrease as the concentration Of the salt solution increases (01)

(c) Simply explain how floatation increases as the solution becomes more concentrated (02)



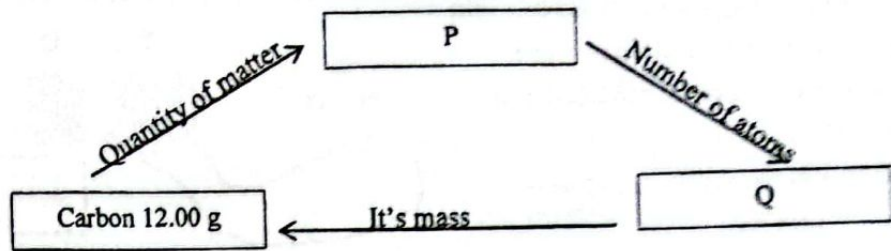
(iii) Calculate the pressuere exerted by the point at the bottom of a water column which is 10cm height

(Density of water is 1000 kg m^{-3} , $g = 10 \text{ m s}^{-2}$) (03)

(iv) Why a balloon filled with hydrogen gas goes up and a balloon filled with normal air goes down (01)

(20 Marks)

9. (A) Following flow chart shows the relationships between mole ,Avogadro constant and relative atomic mass.



(i) Name P and Q

(ii) Find the , (C=12)

(a) Molar mass

(b) Mass of 2 moles

(c) Number of moles in 6 g of the element carbon

(iii) Define the term Avogadro constant

(iv) Ethene is hydrocarbon .It's structure is given below

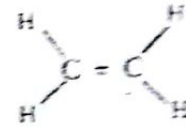
(a) Draw the structure of chloro ethene (01)

(b) Draw the repeating unit of chloro ethene (01)

(c) What is the common name of chloro ethene(01)

(d) "Mis use of polythene cause environmental pollution " mention one point to prove above statement

(01)



(B) The figure shows two ways in which the plugs of an immersion heater are connected

(i) A two pin plug or a three pin plug is suitable for connecting to the household circuit (01)

(ii) Write the names of 2 wires that are connected from domestics circuit to the two pin plug (02)

(iii) Calculate the amount of energy consumed when 500g of water was heated by 1000W immersion heater within two minutes (03).

(v) If initial temperature of 500g of water was 30°C ,Find the final temperature after 2 minutes (03)

(v) Name the heat transferring method of immersion heater (01)

(20 Marks)

