

Department of Education - Western Province

Year End Evaluation - 2011

Grade - 11

Science - I

Name / Index No :- .....

Time - 1 hour

Answer all questions

- (01) Select the group of organisms belong to the class, Algae.
- (1) Mushrooms, Cladophora (2) Chlamidomonas, Mould  
(3) Ulva, Spirogyra (4) Paramecium, Cladophora
- (02) You would be able to identify these two organelles by observing plant cells through a Compound Microscope.
- (1) Endoplasmic Reticulum, Golgi bodies (2) Mitochondria, Vacuoles  
(3) Endoplasmic Reticulum, Mitochondria (4) Nucleus, Vacuoles
- (03) Which of the following is not a function of Human Kidney.
- (1) Removing excess water (2) Reabsorption of Glucose  
(3) Synthesis of Urea (4) Filtering Urine
- (04) Select the suitable example which denotes the relationship 'Symbiosism'
- (1) 'Cuscuta' grow on 'Wathupalu' Creepers  
(2) Adult Mosquito feed on man  
(3) Mushrooms, grow on tree trunk  
(4) 'Rhizobium' bacteria live in Root nodules of legumes
- (05) Which process of the following doesn't contribute much towards the recycling of 'Carbon' in Biosphere,
- (1) Respiration (2) Lightning (3) Photosynthesis (4) Combustion
- (06) Select the incorrect statement about the process of Human Inspiration.
- (1) Contraction of intercostal muscles  
(2) Upward movement of diaphragm  
(3) Controls by Medulla oblongata  
(4) takes place when Pressure inside lungs decrease than Atmospheric pressure
- (07) Four adaptations shown by plants, to minimize Transpiration are given below.
- Thick cuticle
  - Leaf fall
  - Leaves reduced to thorns
  - Shiny Cuticle
- Select the group of plants, which display above features in order,
- (1) Temple tree, 'Bo' tree, Rose, Pumpkin  
(2) 'Kaneru', Rubber, Cactus, Temple tree  
(3) 'Akkapana', 'Daluk', 'Hathawariya', 'Kaduru'  
(4) Temple tree, Rubber, Aloe, 'Kaduru'

(08) Select the two diseases caused due to Recessive genes linked to the sex chromosomes.

- (1) Thalacemia , Haemophilia
- (2) Thalacemia , Red-green colour blindness
- (3) Red-green colour blindness , Haemophilia
- (4) Anemia , Thalacemia

(09) Which statement is correct regarding 'Human Ovum'?

- (1) There are 23 pairs of chromosomes in it
- (2) Production of 'Ova' commences with puberty
- (3) Follicle cells grow into 'Ova' inside the Ovary
- (4) Fertilization of 'Ova' take place in uterus

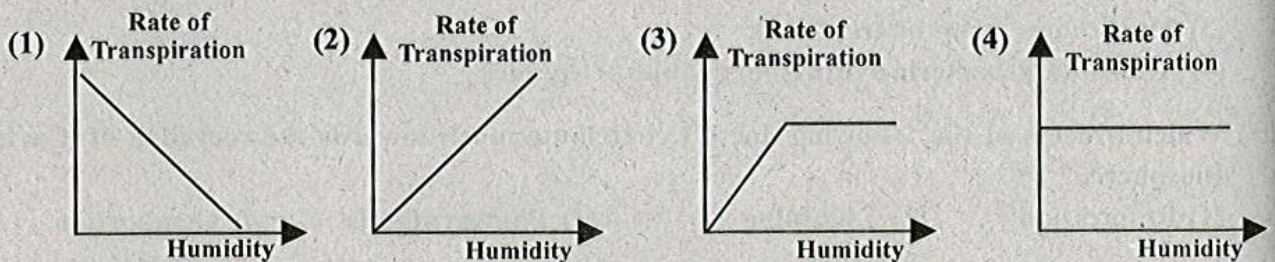
(10) Following are some statements about Viruses,

- A - Reproduce inside living cells
- B - Consist of DNA and RNA
- C - Viruses are cells
- D - No metabolic activities take place inside viruses

The true statements are,

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

(11) Select the graph that illustrates the Relationship between Transpiration rate and Atmospheric Humidity.



(12) Types of cells belong to Plant tissues in left side are given in Right side without order.

Plant tissue

1. Phloem
2. Scelerenchyma
3. Parenchyma
4. Xylem

Cell types

- A. Tracheids , Vessels
- B. Pallisade cells , Spongy cells
- C. Sieve tube cells , Companion cells
- D. Fibres , stone cells [Sclerides]

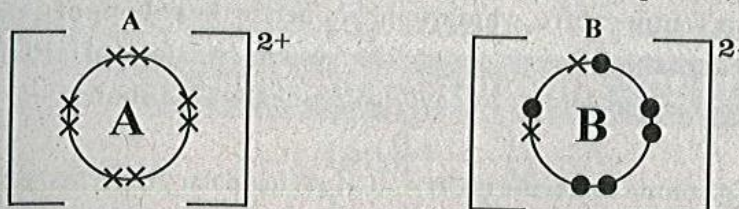
Select the correct order of cell types according to the given order of Tissues as 1, 2, 3, 4

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

(13) Select the answer with Correct symbols of electron , proton and neutron.

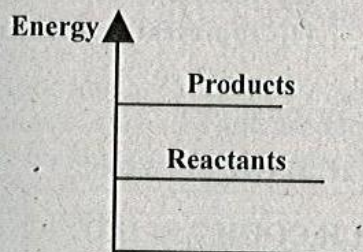
- (1)  ${}^0_1e$  ,  ${}^1_1p$  ,  ${}^0_1n$
- (2)  ${}^0_1e$  ,  ${}^1_1p$  ,  ${}^1_1n$
- (3)  ${}^0_1e$  ,  ${}^1_1p$  ,  ${}^1_0n$
- (4)  ${}^0_1e$  ,  ${}^1_1p$  ,  ${}^0_1n$

(14) The Diagram below depicts the bonding nature of a chemical compound,



Choose the correct statement about the above elements A and B

- (1) A belongs to (ii) Group, B belongs to (vi) group
  - (2) A and B are not acquired the noble gas configuration
  - (3) A is reduced and B is Oxidized
  - (4) A is a nonmetal and B is a metal
- (15) A rough sketch of a graph associated with Heat change of a chemical reaction is drawn below



What could you deduce about the reaction

- (1) exothermic and energy of reactants are more than energy of products
  - (2) exothermic and energy of reactants are less than energy of products
  - (3) endothermic and energy of reactants are more than energy of products
  - (4) endothermic and energy of reactants are less than energy of products
- (16) Which is the correct statement about a mole of methane and a mole of carbon dioxide,
- (1) masses are equal
  - (2) molar masses are equal
  - (3) no. of molecules are equal
  - (4) no. of atoms are equal
- (17) What would be the observation of the flame of a bunsen burner, if the airpore closes gradually by collar.
- (1) Flame turns to blue
  - (2) Flame turns to yellow
  - (3) Intensity of blue colour increases first, and then turn to yellow
  - (4) Intensity of yellow colour increases first, and then turns to blue

*Answer the Question no. 18, 19 based on these four metals*

- (18) Consider the series of metals given. Mg, Zn, Na, Cu  
The metal which doesn't react with dil acids,
- (1) Mg
  - (2) Zn
  - (3) Na
  - (4) Cu
- (19) Select the correct order of elements, if arranged according to the descending order of reactivity
- (1) Na, Mg, Cu, Zn
  - (2) Mg, Na, Zn, Cu
  - (3) Cu, Zn, Mg, Na
  - (4) Na, Mg, Zn, Cu

B. Sweet toddy is a sugary solution. when exposed to air this sugary sweet toddy converted to toddy through this reaction.

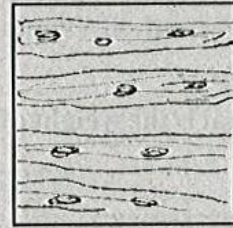


- (i) Name the micro-organism who involve in above reaction.  
.....
- (ii) State the method of respiration , microorganisms follow.  
.....
- (iii) Calculate the molar mass of Ethanol. (C=12 , H=1 , O=16)  
.....  
.....
- (iv) Ethanol is highly inflammable. write down the balanced chemical equation for complete combustion of ethanol.  
.....
- (v) Draw a simple diagram of above weight and string and mark the forces acted on it. ( Assume that weight and the string is in equilibrium state )  
.....  
.....
- (vi) Mango tree dies , if a complete ring of the bark removes. But Kitul tree does not die under that the condition. Explain this through the stem structures of mango and Coconut.  
.....  
.....

(15 marks)

(02) A.

(i) Identify and Name the animal tissues given below.



a. .... b. .... c. ....

(ii) What is called a 'Tissue'?

(iii) State two places of Human body , where the tissue 'a' is found.

(iv) Mention two characteristics of tissue 'b' ; which you used to identify the tissue easily.

.....  
.....

(v) Name the tissue , which is associated with the skeletal system.

.....  
.....

B. When a smear of blood observed through a compound microscope , white blood cells can be seen clearly

(i) Name another type of blood cells , that you can observed in this blood smear.

.....  
.....

(ii) State one function of above mentioned cell type.

.....  
.....

(iii) Name two substances transported by blood plasma.

.....  
.....

(iv) What is the disease caused due to the unusual increasment of white blood cells.

.....  
.....

(15 marks)

(03) A Rough sketch of a part of the periodic table is given below.

[ Elements are not given in real symbols]

							G
	A		B		C	D	
E		F					
H							

Answer the questions with the help of above information

(i) Name an element of monovalent , not belong to first group.

.....  
.....

(ii) Write one similarity and one dissimilarity between E and H elements.

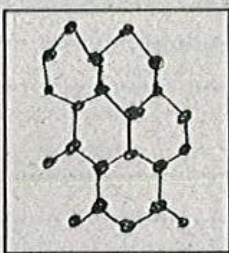
Similarity :- .....

Dissimilarity :- .....

(iii) Draw the Atomic structure of the element with maximum melting point , displaying its electronic configuration , clearly.

.....  
.....  
.....

(iv) 'Atomic lattice' of one element above can be drawn as below.



- (a) What is this element .....
- .....
- (b) State one characteristic feature of above element , possessed due above atomic arrangement
- .....
- .....

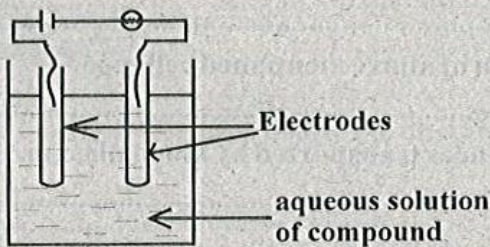
(v) Mention one use of element 'G'

.....

(vi) Write the formula of compound , formed by the reaction between elements F and C.

.....

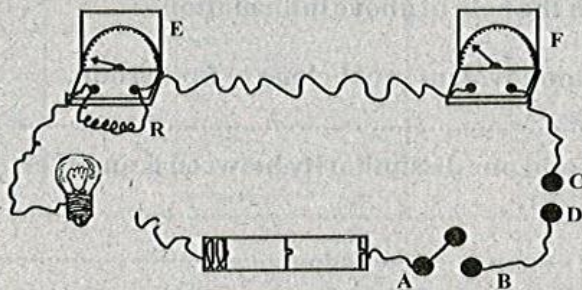
(vii) A set up arranged to investigate the bond types of  $\text{CuSO}_4$  and Glucose is given below.



- (a) Name suitable substance to use as electrodes , which do not react with electrolyte
- .....
- (b) In which instance the bulb get lighted ?  $\text{CuSO}_4$  in the solution, Glucose in the solution , or both
- .....
- .....
- (c) Give your reason to above (b) selection.
- .....
- .....

(15 marks)

(04) A. Given above is a set up of incomplete electric circuit , that has been arranged by a student , to prove the Ohm's law in laboratory. Imagine that you are assigned to complete the set up.



- (i) (a) Draw the way , you connect the bulb and battery in above diagram
- (b) State the instrument , you connect the gap between C and D.
- .....

(ii) Name E and F instruments

E :- .....

F :- .....

According to the above diagram, Find the instances where parallel and opposite forces act,

- (1) A and B                      (2) A and C                      (3) B and C                      (4) A, B and C

(27) When the tyres of a loaded vehicle was stuck in the mud, the goods were unloaded, sand was put around the jammed tyres and the vehicle was moved to run.

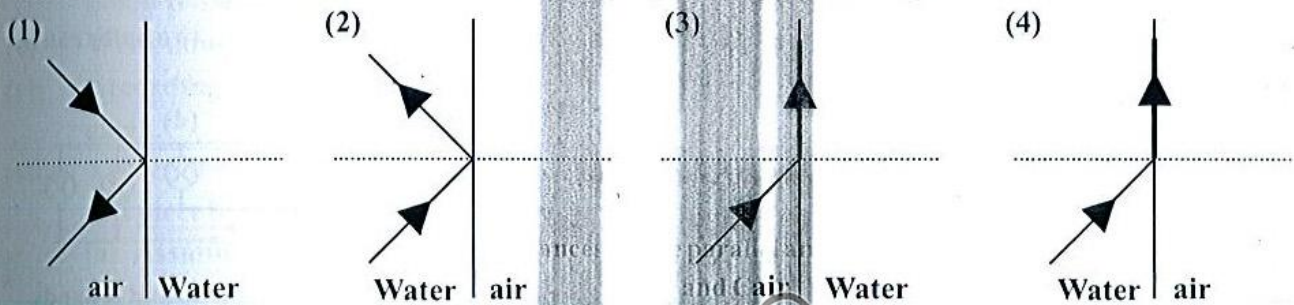
These three statements are about the successful effort taken

- A - rough surface made the vehicle easy to move  
 B - broad tyres decreased the limiting frictional force  
 D - since the goods were unloaded, limiting frictional force decreased.

What is your conclusion?

- (1) A and B are true                      (2) A and C are true  
 (3) B and C are true                      (4) all A, B and C are true

(28) What is the ray diagram, in which the critical angle is equal to the incident angle.



(29) Select the correct statement about the mirror and the image of object O, formed in front of mirror.

- (1) mirror is concave and image locate between C and Infinity  
 (2) mirror is concave and image locates between P and F  
 (3) mirror is convex and image locates between C and infinity  
 (4) mirror is convex and image locates between F and F



(30) Which diagram illustrates the use of a biconvex lens as a magnifying lens.



(31) A and B are two electroscopes with diverged gold leaves. when a positively charged rod take closer to the disc of electro scope A, divergence increased ; B, divergence decreased. what were the charges of A and B electro scopes.

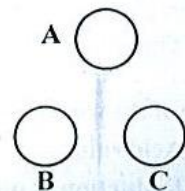
	(1)	(2)	(3)	(4)
Charge of A	+	+	-	-
Charge of B	-	+	+	-

(32) There are three wires in three colours known as live, neutral and earth, in a three core wire. These are connected with socket circuits of the Home electric circuit.

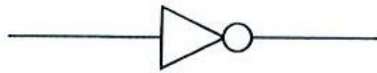
Diagram of a socket is given.

What is the correct way of connecting three wires with three terminals of A, B and C

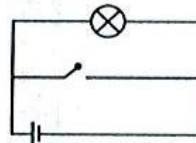
- (1) A - earth                      B - live                      C - neutral  
 (2) B - neutral                      C - live                      A - earth  
 (3) C - earth                      B - neutral                      A - live  
 (4) C - neutral                      A - live                      B - earth



(33)



1 - diagram

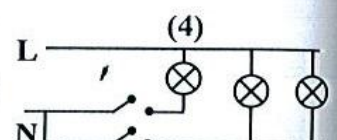
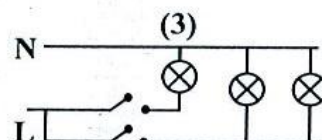
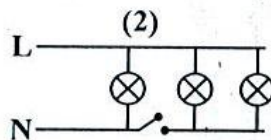
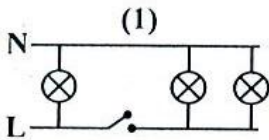


2 - diagram

Select the correct statement regarding diagram one and two

	1 - diagram	2 - diagram
1	OR Gate	Electric circuit with OR gate
2	OR Gate	Electric circuit with NOT gate
3	NOT Gate	Electric circuit with NOT gate
4	NOT Gate	Electric circuit with OR gate

(34) A part of the circuit belong to Home electric circuit is given here. In which circuit diagram , two bulbs can be lighted at the same time through one switch.

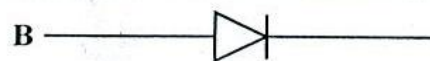
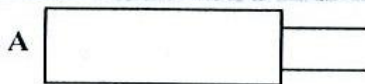


(35) A resistor of  $1000\Omega$  has drawn below with P, Q and R bands. what should be the colours of P, Q and R bands. [Black - 0 , Brown - 1 , Red - 2 ]



- |              |           |           |
|--------------|-----------|-----------|
| (1) P- Black | Q - Brown | R - Red   |
| (2) P- Brown | Q - Red   | R - Black |
| (3) P- Red   | Q - Black | R - Brown |
| (4) P- Brown | Q - Black | R - Red   |

(36)



Select the correct statement about A and B

- |               |                       |                   |                       |
|---------------|-----------------------|-------------------|-----------------------|
| (1) A - Diode | B - Symbol            | (2) A - Capacitor | B - Symbol            |
| (3) A - Diode | B - Symbol of a diode | (4) A - Capacitor | B - Symbol of a diode |

(37) When a sample of Iron wool kept exposed to the air under normal atmospheric conditions , get rusted slowly. But when heated, it burns quickly releasing sparkles. These observations revealed that , the rate of reaction is affected by.

- |                                |                                  |
|--------------------------------|----------------------------------|
| (1) Concentration of reactants | (2) Physical nature of reactants |
| (3) Temperature of the system  | (4) Catalysts                    |

(38) Among the trees which produce bio fuel , which plant is not useful to provide food for humans.

- |           |                   |               |               |
|-----------|-------------------|---------------|---------------|
| (1) Maize | (2) 'Weta Endaru' | (3) Sugarcane | (4) Sunflower |
|-----------|-------------------|---------------|---------------|

(39) One of the world's main environmental issues , we experience today is,

- |                                |                              |
|--------------------------------|------------------------------|
| (1) Acid rains                 | (2) Global warming           |
| (3) Reduction of bio diversity | (4) Depletion of Ozone layer |

(40) It is believed that the reason for a certain sickness suffered by people in Dry zone of Sri lanka is due to contamination of drinking water by chemical compounds , industrial effluents and pesticides. That disease is

- |              |                  |                     |               |
|--------------|------------------|---------------------|---------------|
| (1) Diabetes | (2) Heart attack | (3) Kidney diseases | (4) Gastritis |
|--------------|------------------|---------------------|---------------|



(b) Above mentioned reaction (a) belongs to neutralization type of reaction. state one use of neutralization reactions in daily life

4) Atmospheric air is a mixture of different gases and dust particles. Various environmental changes has been taken place in our environment due to the increasement of atmospheric sulphur dioxide.

(i) What is the main environmental issue arise due to the above mentioned incident?

(ii) Mention one human activity through which sulphur dioxide gas is added to our environment

(iii) State one action , we can follow to limit the addition of this gas to environment.

(iv) Sulphur dioxide dissolve well in water. What is the p<sup>H</sup> value of resultant solution ; above p<sup>H</sup>7, below p<sup>H</sup>7 or equal to p<sup>H</sup>7?

(v) Write down the balanced chemical equation for above reaction.

(vi) According to above written equation (v) , mention two adverse effects of falling this water on earth.

(vii) A piece of rock is rich with Calcium carbonate. If excess amount of a certain acid collected to this piece of rock;

(a) Assuming that the collected acid as Hydrochloric , calculate the amount of moles of calcium carbonate that react with acid.

The relevant equation is this.



leased. (b) What is the mass of carbon dioxide gas released out to the environment , if 200g of calcium carbonate reacted. [Ca=40, O=16, C=12]

5) B. aquatic the gases dissolved in water is very important to aquatic organisms. Micro-organisms decay the organic matter collected in their habitats.

(i) Name the gas used by micro organisms to decay organic matter in water

(ii) State one factor , which can be used to measure the quality of water.

(iii) Purification of water is done through various methods. filtering of solid wastes is one such method

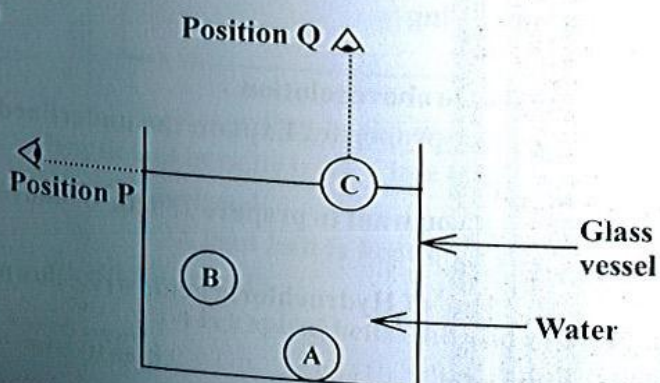
(a) State one other method, suitable to purify water.

(b) State one substance added to water for purification purpose.

(20 marks)

## Physics

9) A , B and C three objects are made of three substances; Plastic , Iron and wood separately. Their locations in water vessel is shown here



- (b) After placing the pollen grain on stigma it starts to grow and number of changes take place until the fertilization process. Mention the above changes in sequential order.
- B. Maintenance of a constant internal environment inside the body is called Homeostasis. Regulation of blood Glucose level is one such factor.
- (i) Name two other factors regulated through homeostasis process.
- (ii) Average blood Glucose level of healthy adult is  $90\text{mg}$  in  $100\text{cm}^3$  of blood
- (a) Name the hormone which control this Glucose level when exceeds normal range.
- (b) Name two features possessed by a hormone
- (c) The main reason for the disease 'Diabetes' is exceeding the level of blood Glucose than the normal level. What is the organ which influence this diseases condition.
- (d) Name two features of above disease.
- (e) Explain the way of regulating blood Glucose level in human body by the above mentioned organ.

(20 marks)

## Chemistry

(07) Salt production is carried out industrially by two main methods These are the saltern method and Rock salt method. [ore method]

- A.
- (i) Which method is used to produce salt in Sri Lanka?
- (ii) What is the phenomenon applied in above mentioned method to produce salt.
- (iii) State one climatic condition and one geographic condition separately, that is necessary to be considered when selecting a place to establish a saltern.
- (iv) A saltern consists of three types of tanks. First one is called large tank (Shallow tank), sea water is pumped into this tank first.
- (a) Which salt or substance get precipitated in the first tank.
- (b) Again at the second tank, another salt get precipitated. Mention one use of this precipitated salt in second tank.
- (v) Common salt get precipitated in third tank, and sometimes give bitter taste and become white, when exposed to air. this situation is considered problematical.
- (a) Name a constituent which causes this problematic condition.
- (b) State two steps that could be followed during salt production to overcome this problem.

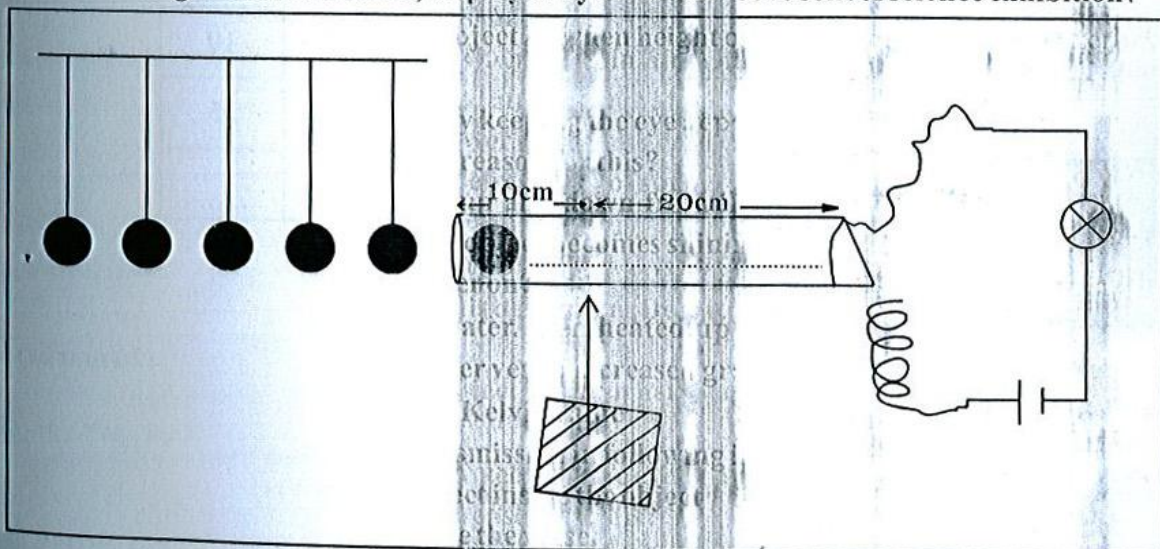
B. A bottle with a solution in laboratory has a label as following

5% w/v
NaOH(aq)
2011.05.18

- (i) Which type of solution is NaOH?
- (ii) Name the solute and the solvent in above solution
- (iii) NaOH solution has strong basic properties Explain the underlined phrase of this statement.
- (iv) What is the mass of NaOH necessary to be measured if you want to prepare  $250\text{cm}^3$  of above solution.
- (v)(a) If  $10\text{cm}^3$  of above solution of NaOH, reacted with  $10\text{cm}^3$  of Hydrochloric acid; write down the balanced chemical equation for the reaction

- (i) Name the substance, that object A is made of? (1 mark)
- (ii) (a) If object B reads 100g mass, when hung in air with the help of spring balance, what would be the reading of it, when immerse in water? (1 mark)
- (b) Explain the reason for your answer (a) (2 marks)
- (c) What is the feature present in Helix spring of spring balance to function properly. (1 mark)
- (iii) (a) It was deduced that, the density of object C is  $775\text{kgm}^{-3}$ , from an experiment done in laboratory Do you agree with this deduction [Density of water =  $1000\text{kgm}^{-3}$ ] (1 mark)
- (b) Explain your answer (1 mark)
- (c) Calculate the pressure act on object A, when height of water level is 25cm in water vessel. [ $g = 10\text{ms}^{-2}$ ] (2 marks)
- (iv) (a) When observed the object C, by keeping the eye at pond Q positions separately, appears in different shapes. What is the reason for this? (2 marks)
- (b) When the eye level is moving up and down from 'P' position there will be a situation where the immersed part of the object becomes shining. How do you name this phenomenon? (1 mark)
- (v) Iron object was taken out from water, then heated up to  $100^{\circ}\text{C}$  and put again into water vessel, then the temperature of water vessel increased gradually.
- (a) State the  $100^{\circ}\text{C}$  temperature in Kelvin value (1 mark)
- (b) Name the methods of heat transmission in following instances
1. When heating the iron object inside the object (1 mark)
  2. When heating water, inside the vessel (1 mark)
- (c) Explain above heat transmissions; in a and b instances (2 marks)
- (d) The mass of Iron object is 500g. Calculate the amount of heat received by water. [specific heat capacity of iron =  $460\text{J kg}^{-1}\text{K}^{-1}$ ]

(10) Given below is a diagram of an exhibit, displayed by a student at the school science exhibition\



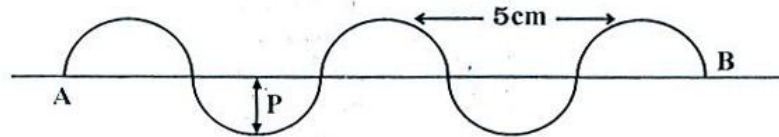
According to the diagram, a number of lead balls are hung on a supporter at same length and in same level. Close to the last lead ball a gutter is kept in balanced position. [both ends of gutter is closed]

A lead ball is kept on P end, and Q end is connected to an incomplete simple electric circuit with a bulb

A is a spiral helix, the lead ball hung close to 'P' end is oscillated; then all the other balls

touch together and make a noise, along with the flickering of the bulb for sometime.

- (i) Write down the energy conversion takes place in the above setup.
- (ii) (a) What is the type of waves produced by vibration of balls.  
(b) Explain your answer.
- (iii) This wave diagram depicts the vibration of lead balls at a certain moment



- (a) What is the wave length?
- (b) Calculate the distance AB.
- (c) State the minimum value of P, if the distance between two iron balls is 1 cm
- (iv) At some instances though the lead balls vibrated the noise is not heard. Give reasons.
- (v) The time interval taken to flickering of bulb was 25 seconds
  - (a) Find the distance moved by the lead ball during this time interval
  - (b) Calculate the displacement of lead ball during this period
  - (c) When the last lead ball collide with P end of Gutter, the lead ball which is in gutter moves along it taking 5 seconds interval until the bulb gives light. The diagram below shows the motion of the lead ball kept inside the gutter.



The chart prepared using the above data is given below. copy it and fill the blanks.

Displacement (cm)	2	4	6	.....	10
Time (s)	5	.....	15	20	25
Velocity ( $\text{cms}^{-1}$ )	.....	0.8	1.2	1.6	.....

- (d) Name the type of motion, according to data.
- (e) Draw the rough shape of the v-t graph, for the above motion

(20 marks)