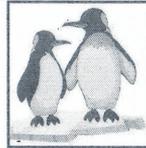
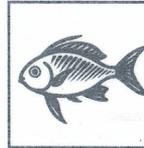


10. Warm blooded animals from following vertebrates are,

1. Only A and B
2. Only A and C
3. Only A and D
4. Only C and D



A



B



C

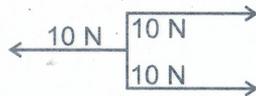


D

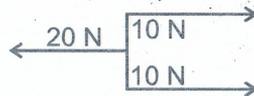
11. Which of the following situation shows the equilibrium condition?



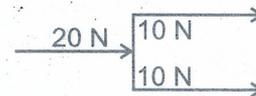
1.



2.



3.



4.

12. Which of the following are two ions that have the same electronic configuration?

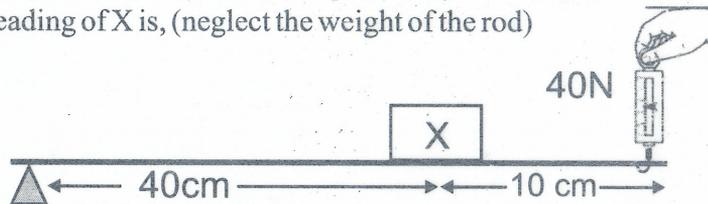
1. Na^+ and K^+
2. K^+ and Cl^-
3. K^+ and Ar
4. Na^+ and Cl^-

13. The tissue formed by living, isodiametric cells with a large central vacuole is,

1. Parenchyma
2. Collenchyma
3. Sclerenchyma
4. Xylem

14. An object X placed on a light wooden rod as shown in the figure and suspended by a newton balance and the reading in stationary position is 40 N. Reading of X is, (neglect the weight of the rod)

1. 5 N
2. 10 N
3. 40 N
4. 50 N



15. Consider the following statements regarding human implantation,

- A. A day after fertilization, the egg is implanted in the uterine wall.
- B. When the morula disintegrates the tissues of uterine wall and sinks into it is called implantation.
- C. When implantation occurs, the ovary does not ovulate until parturition.

Correct statements are,

1. Only A and B
2. Only A and C
3. Only B and C
4. All A, B and C

16. A boat floats and stays still in fresh and marine water in two instances. Correct statement regarding it is,

		Marine water	Fresh water
(1)	Volume of water displaced	high	low
(2)	Weight of the displaced volume of water	equal	equal
(3)	The upthrust exerted by the water on the boat	high	low
(4)	The volume that the boat sinks in the water	equal	equal

17. Which statement regarding rate of reaction is false.

1. Increasing the rate of reaction can be used in a fruitful way.
2. Decreasing the rate of reaction can be used in a fruitful way.
3. Rate of reaction increases when the surface area and concentration of the reactants increase.
4. As the pressure and temperature of the reaction between gases decrease, the rate of reaction increases.

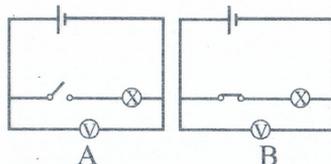
18. Two students named P and Q moved to the third floor from the first floor of the building at a height of 9m. Student P travels in a lift and takes 30 seconds to travel. Student Q moves in a staircase and takes 1 minute. Consider the following statements regarding their motion.

- A. The potential energy stored in the two students is equal
- B. Rate of doing work of Q is less than that of the students?
- C. Student P has not done the work

1. Only A
2. Only A and B
3. Only A and C
4. All A, B and C

19. Measurements given by the Voltmeters connected to circuit A and B are,

	In circuit A	In circuit B
(1)	Potential difference between bulb	Electromotive force of the battery
(2)	Electromotive force of the battery	Potential difference between the bulb
(3)	Potential difference between the bulb	potential difference between the bulb
(4)	Electromotive force of the battery	Electromotive force of the battery



20. The dominant feature of Garden pea for height is represented by (T) and the recessive feature is represented by (t). Phenotype ratios of tall:short = 1:1 when plant seeds and get off springs by cross pollination of a monohybrid cross between parent plants. Genotypes of cross pollinated parents may be.

- 1. TT and TT
- 2. TT and Tt
- 3. TT and tt
- 4. Tt and tt

21. Which factor affects on photosynthesis is testing from this set up,

- 1. Light
- 2. Water
- 3. Carbon dioxide
- 4. Chlorophyll



22. The process of separating several volatile components from a mixture by supplying different temperature ranges is called.

- 1. Simple distillation
- 2. Fractional distillation
- 3. Steam distillation
- 4. Solvant extraction

23. The distance between one particle and the closest next particle taking part in the wave motion having the same state of motion is known as,

- 1. Amplitude
- 2. Frequency
- 3. Wave length
- 4. Speed

24. Which metal does not displace Copper when added to Copper Sulphate solution.

- 1. Mg
- 2. Zn
- 3. Ag
- 4. Al

25. An object was kept 8 cm away form a concave mirror whose focal length is 10cm. Features of the image formed are,

- 1. Real, inverted and diminished
- 2. Real, inverted and equal to the object
- 3. Real, inverted and magnified
- 4. virtual, upright and magnified

26. An example for sympathetic action is,

- 1. Increases the size of the pupil
- 2. Stimulates saliva secretion
- 3. Increases peristalsis
- 4. Reduce the hear beat

27. Example for a strong acid and a weak base respectively is,

- 1. HCl and HNO₃
- 2. HNO₃ and CH₃COOH
- 3. CH₃COOH and H₂CO₃
- 4. H₂CO₃ and HCl

28. If the room temperature is 30°C, that value in Kelvin is,

- 1. 243 K
- 2. 30 K
- 3. 273 K
- 4. 303 K

29. Anodic reaction of Zn/Cu simple cell is,

- 1. $Zn \longrightarrow Zn^{2+} + 2e$
- 2. $Cu \longrightarrow Cu^{2+} + 2e$
- 3. $2H_2O + O_2 + 4e \longrightarrow 4OH$
- 4. $4OH \longrightarrow 2H_2O + O_2 + 4e$

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30. A and B are two components of a domestic circuit. Name of A and B respectively.

1. Overload circuit breaker and isolater
2. Isolater and Residual current circuit breaker
3. Residual current circuit breaker and miniature circuit breaker
4. Miniature circuit breaker and overload circuit breaker



A



B

31. Consider A and B regarding electrolysis

- A. Oxidation takes place in anode
B. Oxidation half reaction takes place near the electrode connected to the positive terminal of the cell from the above statements,

1. Both A and B are true
2. Both A and B false
3. A is true and B is false
4. A is false and B is true

32. Application of electromagnet is "

1. Loudspeaker
2. Moving coil magnetic microphone
3. Bicycle dynamo
4. Transformer

33. Monomer of PVC is,

1. Ethene
2. Chloro ethene
3. Tetra flora ethane
4. Isoprene

34. Bio accumulation mostly affects on,

1. Producers
2. Primary consumers
3. Herbivore organism
4. Organisms in the last trophic levels

35. Component which connects only to live wire in the domestic circuit is,

1. Electric meter
2. Isolator
3. Residual current circuit breaker
4. Miniature circuit breaker

36. Following are the statements of three students regarding chemical reactions,

- A. Heat absorbs during an endothermic reaction
B. Combustion occurs, when supplies heat, in exothermic reactions.
C. Decomposition occurs when gives heat in exothermic reactions.

Correct answer is,

1. Only A
2. Only A and B
3. Only A and C
4. All A, B and C

37. Distance / displacement travelled in an uniform acceleration is,

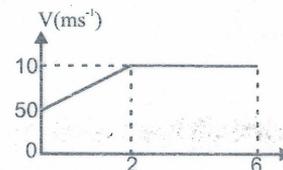
1. 2.5 m
2. 5 m
3. 15 m
4. 55 m

38. Following are the statements regarding environmental pollution,

- A. Acid rain is a result of environmental pollution.
B. Involvement of everyone is needed to minimize the environmental pollution.
C. Pollution does not contribute to the depletion of ozone layer

Correct answer is,

1. Only A and B
2. Only A and C
3. Only B and C
4. All A, B and C



39. Containers that contain salmon are called tin. In them,

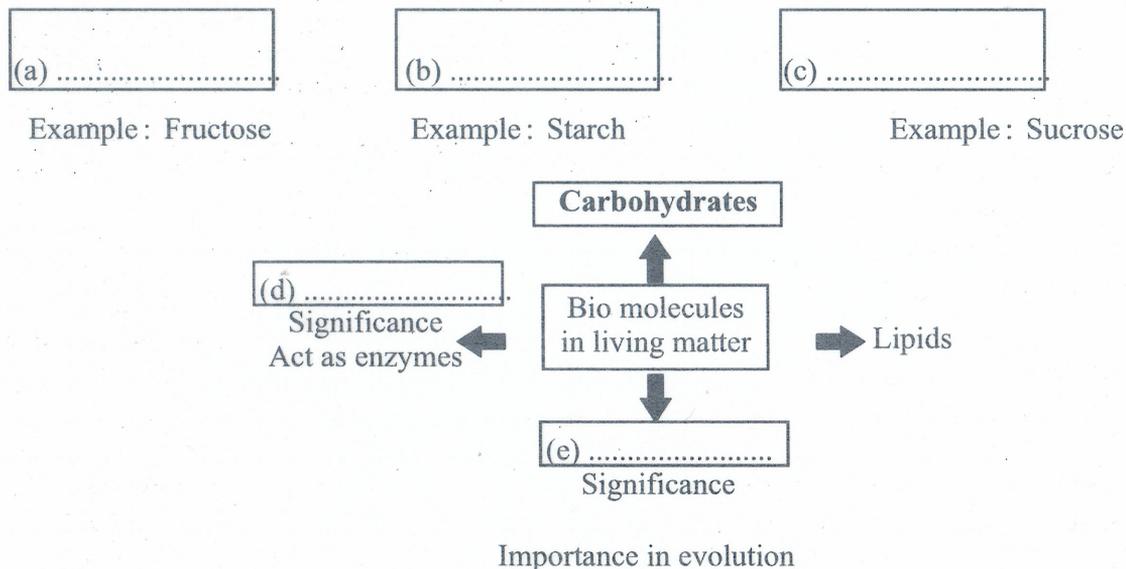
1. Tin metal uses to make the container
2. Container made up with iron metal and tin metal plated on it.
3. Container made up with tin metal and another metal plated on it
4. Tin metal is not used to make the container or plate the container.

40. We need to learn about diseases related to human body system,

1. To be aware of how diseases are transmitted
2. To reduce the risk of getting diseases.
3. To successfully answer the questions of term test, exam etc.
4. To gain the understanding needed to decide on the best specialist to treat the disease.

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(02)A. The following is a diagram drawn by a student about the organic compounds that build up the living matter.



- i. Fill in the (a),(b),(c), (d) and (e) blanks by using suitable words in th diagram. (05 marks)
- ii. Name the organic compound in living matter that is not mentioned in the diagram. (01 mark)
- iii. Give one contribution of water for the maintence of life due to the solvent property. (01 mark)
- iv. Write down a symptom of Nitrogen deficiency in plants. (01 mark)
- v. What is the element affected to anaemia, sleepiness and weakness in psychological development ? (01 mark)

B. The organizational levels of plants and animals are arranged in hierarchical manner as.

Cell → Tissue → Organ → Systems → Organism

Fill in the blanks (a),(b), (c), (d) ,(e) and f in the table.

Name of the plant tissue	Type of cell in the tissue	Function
Blood tissue	(a)	Transportation of materials
(b)	Muscle cells	(c)
(d)	Neurons	(e)
(f)	Parenchyma cells	Photosynthesis

(06 marks)

(03)A. In some elements outer most energy level / valency shell is completed with the maximum number of electrons and in some elements the valency shell is not completed.

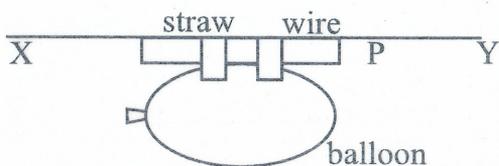
- i. Complete the blanks by using elements in th brackets. (Na, H, Cl, He)
 is an element with maximum number of electrons in the valency shell and to complete the valency shell. and elements share electrons.
 and elements formed ionic bonds to complete the valency shell. (05 marks)
- ii. The number of electrons in the valency shell of X element is seven and the number of electrons in the valency shell of Y is two.
 - a. Write down the valencies of X and Y elements respectively (02marks)
 - b. Write the formula of the compound formed by combination of X and Y elements. (01 mark)

B. The eight consecutive elements in one period is given below.

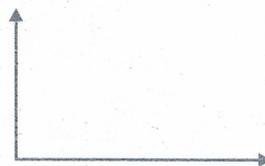
Na	Mg	Al	Si	P	S	Cl	Ar
----	----	----	----	---	---	----	----

- i. Write down the suitable element for the following information, based on above elements.
 - a. The most electronegative element. (01 mark)
 - b. The element which has highest first ionization energy. (01 mark)
 - c. The element formed Amphoteric Oxide. (01 mark)
 - d. The element formed strong basic Oxide. (01 mark)
 - ii. What is the period of the above elements belong to? (01 mark)
 - iii. A cation is formed by removing two electrons of Mg atom. Write down the ionic equation for that. (01 mark)
 - iv. Relative atomic mass of Na is 23 What is the mass of 2mol of Na? (01 mark)
- (15 marks)

(04)A. The following figure shows the apparatus to demonstrate Newton's laws. Two ends of the XY wire tied up horizontally by inserting the wire through a straw. The straw has been attached to the air filled balloon using cellotape.

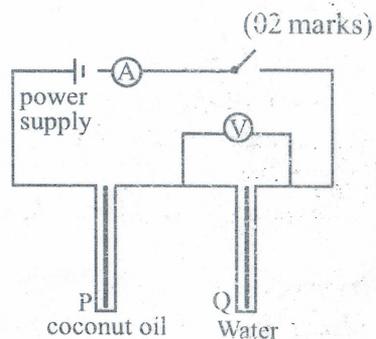


- i. Complete the following blanks using X and Y letters meaningfully.
 - a. When the balloon moves to the direction the air leaving inside the balloon to the direction. (01 mark)
 - b. The action of the balloon in direction and the reaction to the direction. (01 mark)
- ii. Which is the law demonstrated by the above activity, (01 mark)
- iii. The balloon moves with uniform velocity from X to P and moves from P to Y in deceleration.
 - a. Is there an external unbalanced force exerted on the balloon when moving from x to P? (01 mark)
 - b. Plot the velocity time graph for the motion from X to Y. (02 marks)



- c. Write two steps should be followed when preparing the apparatus to move the balloon much longer distance. (02 marks)

B. Two identical Nichrome wires are immersed in two boiling tubes with equal masses of water and coconut oil. The power supply is connected as shown in the diagram.

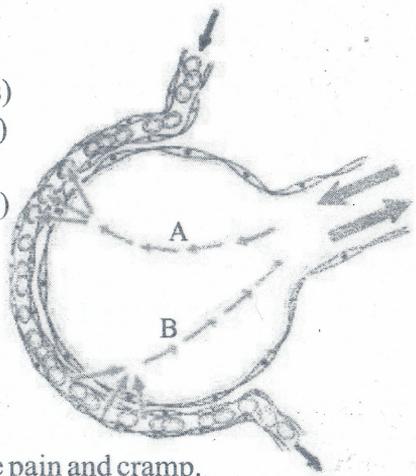


- i. Write down an observation in apparatus when the switch is on in the circuit. (01 mark)
 - ii. If a reading of Ammeter is I and reading of voltmeter is V, write down the suitable expression for the resistance of coil Q. (01 mark)
 - iii. When the current passes through a wire is 5 A and potential difference of wire is 10 V, What is the power of heat generation in the coil? (02 marks)
 - iv. Calculate the amount of heat energy required to rise the temperature by 2°C in water. (Specific heat capacity of water is 4200 Jkg⁻¹K⁻¹) (03 marks)
- (15 marks)

PART - B

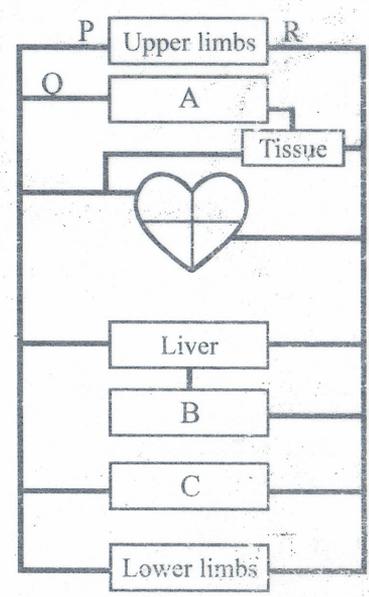
(95)A. The plant and animals produce energy by respiration to maintenance of life. The following diagram shows the structure of human alveoli.

- i. Identify and name A and B gaseous matters. (02 marks)
- ii. How the function of alveoli important for respiration. (01 marks)
- iii. Write two adaptations of alveoli for efficient gas exchange. (02 marks)
- iv. The respiration is take place with or without Oxygen.
 - a. Write down the word equation for the respiration in the presence of Oxygen (01 marks)
 - b. Mention a product during the respiration without Oxygen in plants. (01 mark)
 - c. The player faced an incident of muscle pain and cramp due to an instant activity like running. Explain the reason for muscle pain and cramp. (02 marks)



B. The following diagram is drawn by the student about the human blood circulatory system and the combination with few systems.

- i. Write the relavant letter of given systems. (03 marks)
 - a. Digestive system
 - b. Excretory system
 - c. Lymphatic system
- ii. In which direction of blood circulator where PR or RP? (01 mark)
- iii. What is the name of fluid Q? (01 mark)
- iv. Mention the composition of fluids flow through P and Q vessels;
 - a. Similarity (01 mark)
 - b. Difference (01 mark)
- v. What is the function of Lymphatic system, (01 mark)
- vi. Mention a disease associated with blood circulatory system and mention a good prevention measure to control the condition. (02 marks)
- vii. Mention a bad habit that affect to the stones in kidney (It is helpful to avoid this condition) (1 mark)



(20 marks)

(06)A. The following information is about an activity to investigate the factors affecting the solubility of a solute. The temperature considered during the activity is 25°C

- ✦ At 25°C the solubility of Magnesium Chloride in water is 53.0g
- ✦ There are two beakers with 100g of water in each.
- ✦ There are two watch glasses with Magnesium Chloride 50 g and 60 g in each.
- ✦ A student dissolved 50 g of Magnesium Chloride and B student dissolved 60 g of Magnesium Chloride in 100 g of each water beaker separately. One of the mixture is homogeneous and the other mixture is heterogeneous/.

- i. Who is the student obtained heterogeneous mixture? (01 mark)
- ii. Write an observation to prove that the mixture is heterogeneous. (01 mark)
- iii. Explain the reason for obtaining homogeneous mixture to one of the student based on solubility. (03 marks)
- iv. What is the mass of Magnesium Chloride which could be dissolved further in the same water beaker by the student who obtained, 'a' homogeneous mixture? (01 mark)
- v. Calculate the mass fraction of Magnesium Chloride in the mixture prepared by A student. (03 marks)

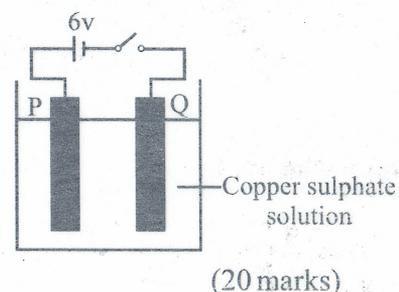
B. Alkanes are Hydrocarbons which have only single bonds between C-C atoms and C-H atoms. Alkenes have C=C double bonds.

- i. State what are hydrocarbons briefly. (01 mark)
- ii. If the common formula of the alkane is $C_n H_{2n+2}$. Derive the structural formula of alkanes that contain one and two Carbon atoms. (02 marks)
- iii. Draw structural formula of monomer repeating unit and representation of the polymer of Ethene. (02 marks)

C. Given below is a set up used for the electrolysis of Copper Sulphate solution.

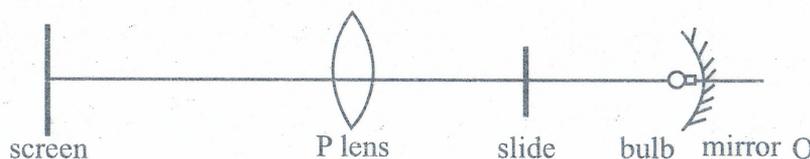
P and Q are inert electrodes.

- i. Write down the material that can be used for the P and Q inert electrodes. (01 mark)
- ii. Write two observations when the switch is on. (02 marks)
- iii. What are the materials can be used as P and Q electrodes to 'coat' an Iron nail with Copper metal by using above apparatus? (02 marks)
- iv. Among the power supply of 12V and 3V which type of power is suitable for plating copper metal instead 6V. (01 mark)



(20 marks)

(07)A. The diagram shows an apparatus prepared by a group of students to obtain the magnified image of a diagram which is drawn on a glass slide to the screen. Focal length of the lens is 10 cm.



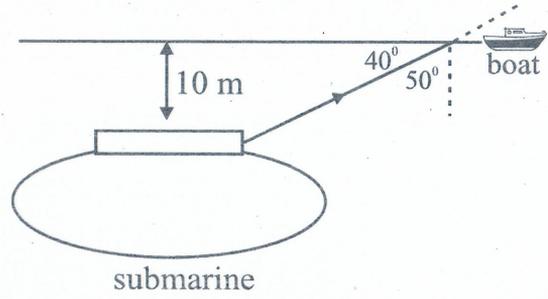
The following are statements presented by three students regarding the distance between the slide and the lens.

- a. When the distance between the slide and the lens is 10cm and 20 cm.
- b. When the distance between the slide and the lens is 20 cm
- c. When the distance between the slide and the lens is greater than 20 cm
- i. State the magnification of image comparative to the object in the above (a), (b) and (c) instances. (03)
- ii. Which is the most suitable instance for the activity, the distance between the lens and slide out of the above (i), (a), (b) and (c) instances? (01 mark)

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- iii. State two characteristics of the image formed in the activity except magnification. (02 marks)
- iv. Draw a ray diagram to show the image formed in the activity by representing the diagram which is drawn on glass slide as a straight line with a arrow head. (02 marks)

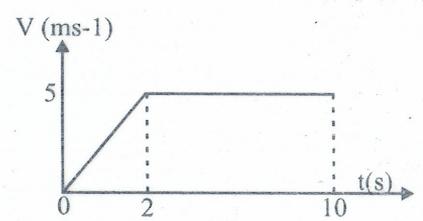
B. The diagram shows a submarine with 10 000 kg which moves under 10 m of the water surface. ($g = 10\text{ms}^{-2}$)



- i. What is the upthrust exerted on the submarine by water? (01 mark)
- ii. Calculate the pressure exerted on submarine by water. (Density of sea water- 1025kgm^{-3}) (03 marks)
- iii. The work done by the engine of submarine within one minute is 30 000 J to move forward. What is the power of engine. (02 marks)
- iv. The sharp beam of light is passed from submarine to the boat with the angle of 40° from water surface; but the man who is in the boat can't see the light. Briefly explain the reason for that. (02 marks)

v. The velocity time graph for the motion of a submarine during 10 seconds is given below.

- a. Briefly explain the motion of submarine during 10 seconds. (02 marks)
- b. Calculate the displacement of submarine during 10 seconds. (02 marks) (20 marks)



(08)A. Even though X and Y chromosomes determine the human sex, all the genes present on those sex chromosomes are not used in determination of sex, most of the genes on X and Y chromosomes determine other features as autosomal chromosomes.

- i. How to define the genes present on X and Y chromosomes are not used in determination of sex? (01)
- ii. Name two genetic disorders due to the genes present on X and Y chromosomes which are not used in determination of sex. (02 marks)
- iii. Mention the way of occurring inherited disorder with an example except the genes on X and Y chromosomes determine other features. (02 marks)

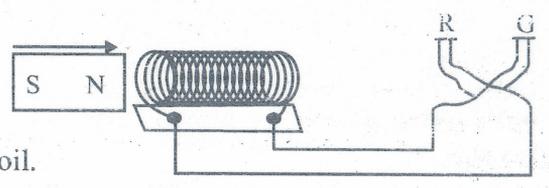
B. Sexual reproduction of plants helps to produce plant generation with new characteristics.

- i. What is the function of self - Sterilia and hercogamy in plants? (01 mark)
- ii. Give an example for plant with hercogamy. (01 mark)

C. Classification is important to study the organisms easily.

- i. What are the two main methods of classifying organisms? (02 marks)
- ii. Among the two methods of classification, what is the important feature of the most appropriate system of classifying organisms which you have studied. (01 mark)

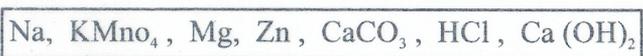
D. The figure below shows an insulated Copper wire wrap about 1000 turns and connect the two LED to the ends inter changing the anode and cathods. R LED glowsx when the magnet moves to wards the coil.



- i. Write down the illumination of LED for the each instance given below.
 - a. A magnet moving away from the coil.
 - b. Changing the poles of the magnet and moving towards the coil. (02 marks)
- ii. Is the current produced in the activity direct current or alternating current? (01 mark)
- iii. Briefly explain the difference of direct current and alternating current. (02 marks)
- iv. State the two factors affecting the magnitude of the induced electromotive force. (02 marks)
- v. What is the rule which can be used to identify the direction of the current induced in a straight conductor? (01 mark)
- vi. Mention two instruments which have been made based on the phenomena electromagnetic induction. (02 marks)

(20 marks)

(09)A. Group of students used some chemicals to do chemical reactions in the laboratory are given below.



- i. Write down the chemicals which can be used to prepare following gasses by using the above.
 - a. Carbon Dioxide
 - b. Oxygen (02 marks)
- ii. When reacting some volume of acid with same mass of Mg and Zn, Mg react rapidly than Zn. Explain using the activity series of metals. (02 marks)
- iii. Write balanced chemical equation for the following reactions by using the above chemicals.
 - a. Decomposition reaction (01 mark)
 - b. Single displacement reactions. (01 mark)
- iv. What is the chemical that can be used to identify Carbon Dioxide gas? (01 mark)
- v. HCl is a strong acid. Briefly explain. (01 mark)
- vi. The reaction of Na with HCl must not be tried in the laboratory when build up the activity series. What is the reason for it.? (01 mark)
- vii. State how to identify HCl and $Ca(OH)_2$ compounds by using P^H papers. (01 mark)

B. P and Q diagram shows two circuits constructed to identify the quality in changes of resistance in a series connection and in a parallel connection of resistors by using simple measure.

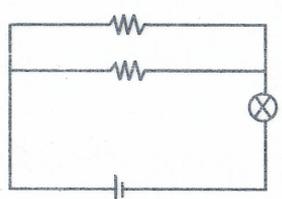


Figure P

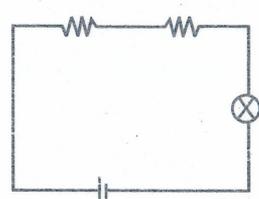


Figure Q

- i. Which circuit of the bulb has more brightness? (01 mark)
 - ii. Which circuit has more equivalent resistance because of having two resistors? (01 mark)
 - iii. Write down suitable expression to calculate equivalent resistance of P and Q figures separately. (02 marks)
 - iv. The another cell connected in a series combination to the above P circuit, The brightness of the bulb is increases, What is the reason? (02 marks)
- C. The factors affecting the resistance of a conductor are length of conductor, area of cross section and resistivity.
- i. Explain the effect of above factors to increase the resistance of a conductor (03 marks)
 - ii. Give an example for the instance used in effectively one of the factors you mentioned. (01 mark)

(20 marks)