CBSE Sample Paper-05 (solved)
SUMMATIVE ASSESSMENT –I
SCIENCE (Theory)
Class – X

Time allowed: 3 hours Maximum Marks: 90

General Instructions:

a) All questions are compulsory.
b) The question paper comprises of two sections, A and B. You are to attempt both the sections.
c) Questions 1 to 3 in section A are one mark questions. These are to be answered in one word or in one sentence.
d) Questions 4 to 6 in section A are two marks questions. These are to be answered in about 30 words each.
e) Questions 7 to 18 in section A are three marks questions. These are to be answered in about 50 words each.
f) Questions 19 to 24 in section A are five marks questions. These are to be answered in about 70 words each.
g) Questions 25 to 27 in section B are 2 marks questions and Questions 28 to 36 are multiple choice questions based on practical skills. Each question of multiple choice questions is a one mark question. You are to select one most appropriate response out of the four provided to you.

Section A

1. What happens when a chemical reaction occurs?
2. Name the excretory unit of kidney.
3. There are two electric bulbs (i) marked 60 W, 220 V and (ii) marked 100 W, 220 V. Which one of the two has a higher resistance?
4. What is efforescence? Give an example.
5. Differentiate between tropic and nastic movements in plants, give one example of each..
6. What are magnetic lines of force? Roughly trace the magnetic field lines for a bar magnet.
7. What are the displacement reactions. Give example also.
8. What is a chemical formula? What information is conveyed by a chemical formula.
9. What is observed when:
   (i) Dilute sulphuric acid is added to solid sodium carbonate.
   (ii) Hot concentrated sulphuric acid is added to sulphur.
   (iii) Sulphur dioxide is passed through lime water?
   Also write chemical equations to represent the chemical reaction taking place in each case.
10. Explain the following terms by giving one example of each:
    (i) Mineral (ii) Ore (iii) Gangue
11. Give reasons:

(i) Metals are regarded as electropositive elements.
(ii) When a piece of Copper metal is added to a solution of Zinc sulphate, no change takes place, but the blue colour of Copper sulphate fades away when a piece of Zinc is placed in its solution.
(iii) Articles made of aluminium do not corrode even though aluminium is an active metal.

12. Draw a diagram of the human respiratory system and label the following in it:
(a) Lungs (b) Primary bronchus (c) Trachea (d) Larynx
13. Give reasons for the following:
(a) The glottis is guarded by epiglottis.
(b) The lung alveoli are covered with blood capillaries.
(c) The wall of trachea is supported by cartilage rings
14. What are the male and female gonads in human beings? State any two functions of each of them.
15. (a) Draw a schematic diagram of a circuit consisting of a battery of five 2 V cells, a 5 ohm resistor and a plug key, all are connected in series
(b) Calculate the electric current passing through the above circuit when the key is closed.
16. How does the strength of the magnetic field at the centre of a circular coil of wire depend upon:
(i) the radius of the coil
(ii) the number of turns of wire in the coil
(iii) the strength of current flowing in the coil?
17. (a) Name the four gases commonly present in biogas.
(b) list two advantages of using biogas over fossil fuels.
18. Dinesh is a student of class 10^{th} standard. He went to a remote area of Rajasthan for trekking with his friends. Dinesh found that it was a sparsely inhabited area. He was surprised to know that there was still no electricity in this area. The people used kerosene oil lamps to light up their homes at night and there were no street lights. The children also had to study with kerosene lamps at night. The village farmers used diesel to run irrigation pumps. Actually there were no pwer transmission lines which could bring electricity to this remote area. Dinesh was really disturbed by the living conditions of the people in thei part of Rajasthan. One day Dinesh gathered all the people of village in the village school. He told them thay if they put pressure on their area MLAs and MPs for making available the required funds, then he could tell them about the devices to light up their homes and streets at night, play radio and television and also run irrigation pumps with electricity without there being power transmission lines. All the people agreed and Dinesh described them the devices to get electricity in their area in detail. The village people were very happy to know this and soon they got electricity in their area.
Read the passage and answer the following questions:
(a) What was the device described by Dinesh to the village people to obtain electricity locally?
(b) What source of energy is made uses of in this device to obtain electricity?
(c) Why do you think this device is more appropriate for an area like Rajasthan?
(d) What is the name of the single unit of this device?

(e) What values are shown by Dinesh in this incident?

[Value Based Question]

19. You are provided with two containers made up of copper and aluminium. You are also provided with solutions of dil. HCl, dil. HNO_3, $ZnCl_2$ and H_2O. In which of the above containers these solutions can be kept?

Or

What happens when zinc granules are treated with dilute solution of H_2SO_4, HCL, HNO_3, NaCl and NaOH? Also write the chemical equations if reaction occurs.

20. (a) What is an 'activity series' of metals? Arrange the metals Zn, Mg, Al, Cu and Fe in a decreasing order of reactivity.
    (b) What would you observe when you put:
    (i) some zinc pieces into blue copper sulphate solution?
    (ii) some copper pieces into green ferrous sulphate solution?
    (c) Name a metal which combines with hydrogen gas. Name the compound formed.

Or

Describe with examples the following steps associated with the extraction of metals from their ores:
(i) Froth-floatation process
(ii) Roasting of an ore
(iii) Calcinations of an ore

21. Explain the process of Photosynthesis in plants. List four factors which influence this process and describe how each of them affects the rate of the photosynthesis process.

Or

List three differences between respiration in plants and respiration in animals. Describe with a labelled diagram how gaseous exchange occurs through root hair in plants.

22. (i) State and prove the Joule's law of heating.
    (ii) Give the commercial unit of electrical energy and relate it to Joule.
    (iii) When 40 W, 220 V bulbs are connected in series to a source of 220 V, find the current flowing in each. If one of the bulb fuses, what will be the current drawn from the source of 220 V?

Or

(a) Give reason, explain how he resistivity of the conductor vary if:
(i) area is halved?
(ii) length is doubled?
(iii) area is doubled?
(iv) both area and length are doubles?

(b) Draw the schematic diagram of a circuit containing the following electrical components:
(i) a resistance (ii) a voltmeter (iii) an electric bulb
(iv) a cell (v) lug key (open) (vi) an ammeter

23. Calculate the electricity bill amount for a month of 30 days, if the following devices are used as specified:
(a) 4 bulbs of 60 W for 6 hours.
(b) 3 tubelights of 40 W for 8 hours.
(c) A refrigerator of 300 W for 24 hours.
(d) An electric mixer of 750 W for 1 hour.
(e) A TV of 100 W for 6 hours.
The cost per unit of electricity consumed is Rs.2.50 for first 50 units and Rs.3.00 for every unit consumed in excess of 50.

Or

A 60 W bulb is connected (i) in series and (ii) in parallel with a room heater and is further connected across the mains. If 60 W bulb is now replaced by 100 W bulb in each case, will the heat produced by heater be less or more? Give reason.

24. (a) What are Magnetic field lines? How is the direction of a magnetic field at a point determined?
(b) Draw two field lines around a bar magnet along its length on its two sides and mark the field directions on them by arrow marks.
(c) List any three properties of magnetic field lines.

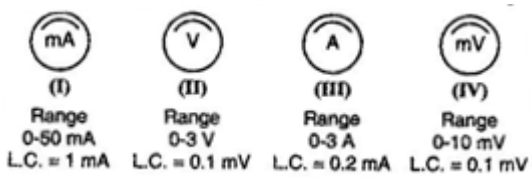
Or

Why is pure iron not used for making permanent magnets? Name one materials used for making permanent magnets.
Describe how permanent magnets are made electrically.
State two examples of electrical instruments made by using permanent magnets.

Section B

25. If phenolphthalein is added to dilute HCl, then what will happen? Justify your answer also.
26. (a) Why does plant cool the atmosphere?
(b) Define that term also.
27. The given wire made of material resistivity 'ρ' is stretched to triple its length. Then what will be new resistivity? Justify your answer also.
28. Conc. H_2SO_4 should be kept away from body because:
(a) it is oily liquid.
(b) it reacts with skin which gets burnt.
(c) of its pungent smell.
(d) it has high boiling point.

29. If we invert a gas jar of SO_2 over water, the observation and conclusion will be:
    (a) Water level rises up because SO_2 is insoluble in water.
    (b) Water level rises up because SO_2 is soluble in water.
    (c) There is no change in water level as SO_2 is lighter than air.
    (d) Water level rises up because SO_2 is heavier than air.
30. The thistle funnel should dipped into conc. H_2SO_4 because:
    (a) SO_2 gas will come out from the thistle funnel.
    (b) SO_2 is lighter than air.
    (c) SO_2 is soluble in water.
    (d) SO_2 is pungent smelling gas.
31. Which of the following is not a part of reflex arc:
    (a) Sensory neuron (b) Brain
    (c) Relay neuron (d) Spinal cord
32. Which hormone is not released from pituitary gland:
    (a) Growth hormone (b) Oestrogen (c) Oxytocin (d) Prolactin
33. A resistor is connected to an ammeter in series and a voltmeter in parallel to a source of energy. The quantity that cannot be found directly is:
    (a) Current (b) Potential Difference
    (c) Resistance (d) All of these
34. Four different measuring instruments are shown below. Out of these, the instrument that can be used for measuring current is/are the instruments labelled as:



    (a) I and III with III more reliable of the two.
    (b) I and IV with IV more reliable of the two.
    (c) II and III with II more reliable of the two.
    (d) II and IV with IV more reliable of the two.
35. Choose the incorrect statement from the following regarding magnetic lines of field:
    (a) The direction of magnetic field at a point is taken to be the direction in which the north pole of a magnetic compass needle points.
    (b) Magnetic field lines are closed curves.
    (c) In magnetic field lines are parallel and equidistant, they represent zero field strength.
    (d) Relative strength of magnetic field is shown by the degree of closeness of the field lines.
36. Acid rain happens because:
    (a) Sun leads to heating of upper layer of atmosphere.
    (b) Burning of fossil fuels release oxides of carbon, nitrogen and sulphur in the atmosphere.
    (c) Electrical changes are produced due to friction amongst clouds.
    (d) Earth atmosphere contains acids.

CBSE Sample Paper-05 (solved)

SUMMATIVE ASSESSMENT –II

SCIENCE (Theory)

Class – X

(Solutions)

SECTION-A

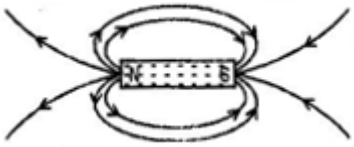
1. When a chemical reaction occurs, new products are obtained.
2. Nephron.
3. $P = \frac{V^2}{R} \Rightarrow \quad P \propto \frac{1}{R} \Rightarrow \quad R \propto \frac{1}{P}$

   Therefore 60 W bulb has a higher resistance.
4. It is property due to which a crystalline substance loses water of crystallization when exposed to air and becomes amorphous, e.g.,

   $Na_2CO_3.10H_2O \xrightarrow{air} Na_2CO_3.H_2O + H_2O$
5.

Tropic movements	Nastic movements
(i) Direction of movement is in the direction of the stimulus. (ii) Movements are slow. Example: The growth of the pollen tube towards a chemical produced by an ovule during the process of fertilization in a flower.	(i) Direction of movement is not determined by the direction of stimulus. (ii) Movements are fast. Example: The folding up and drooping of leaves of the sensitive 'touch-me-not' plant.

6. Lines indicating the presence of magnetic field in a region are called magnetic lines of force.



7. **Displacement** reaction is a reaction in which more reactive element displaces less reactive elements from its salts.

   Example: $2KI(aq) + Cl_2(g) \longrightarrow 2KCl(aq) + I_2(g)$

   It is a displacement reaction.
8. **Chemical formula** is a formula of a compound formed with the help of symbols and valency of elements and radicals.

   Information conveyed by a chemical formula:

   (i) It conveys the name of the compound.

   (ii) It conveys the number and kind of atoms present in one molecule of compound.

   (iii) It conveys the valency of atoms present in it.

   (iv) It represents the molecular weight of the compound.

(v) It indicates that the compound is not electrically charged. It is neutral molecule.

For example, formula $CaCO_3$ conveys following information:

(i) It stands for calcium carbonate.

(ii) It represents the one mole of calcium carbonate. Two molecules of calcium carbonate would be written as $2CaCO_3$ and so on.

(iii) It tells that each formula of $CaCO_3$ contains 1 atom of Ca, 1 atom of C and 3 atoms of O.

(iv) It stands for 100 parts by weight of $CaCO_3$.
(40 + 12 + 3 x 16 = 40 + 12 + 48 = 100)

(v) The ratio among Ca : C : O is 40 : 12 : 48 by weight.

9. (i) CO_2 is formed.

$$Na_2CO_3 + H_2SO_4 \text{ (dil.)} \longrightarrow Na_2SO_4 + CO_2 + H_2O$$

(ii) SO_2 is formed.

$$S + 2H_2SO_4 \text{ (conc.)} \longrightarrow 3SO_2 + 2H_2O$$

(iii) $SO_2 + Ca(OH)_2 \longrightarrow CaSO_3 + H_2O$
Lime water turns milky.

10. (i) **Mineral**: It is naturally occurring substance from which a metal may or may not be extracted profitably, e.g., Borax is mineral from which boron cannot be extracted economically.

(ii) **Ores**: They are naturally occurring rocky substances which contain sufficient quantity of minerals from which metals can be extracted profitably, e.g., Al is extracted from Bauxite.

(iii) **Gangue**: They are rocky materials present in the ores along with the minerals, e.g., SiO_2 is present as gangue in ore of iron.

11. (i) It is because metals can loss electrons easily to form positive ions, therefore regarded as electropositive elements.

(ii) It is because copper is less reactive than Zn, therefore, it cannot displace Zn from $ZnSO_4$ solution.

$Cu + ZnSO_4 \longrightarrow$ No reaction

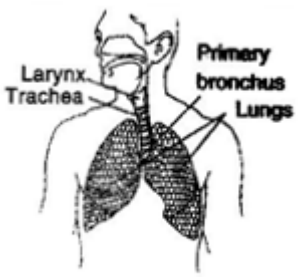
But when Zn is dipped in copper sulphate solution, it displaces copper from $CuSO_4$ to form $ZnSO_4$ which is colourless. Reddish brown copper metal gets precipitated because Zn is more reactive than Cu.

$$Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu$$

Zinc (Blue) (colourless) Copper

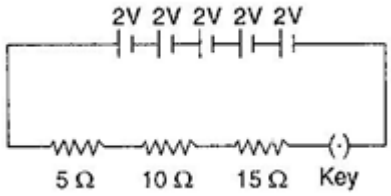
(iii) It is because oxide layer is formed on the surface of aluminum due to which it does not react further because it is non-penetrating layer.

12.



Human Respiratory System

13. (a) Glottis is guarded by epiglottis to prevent food from entering the windpipe at the time of swallowing.
    (b) The lung alveoli are covered with blood capillaries for the easy diffusion of respiratory gases, since both alveoli and blood capillaries are thin-walled.
    (c) The wall of trachea is supported by cartilage rings so that it does not collapse when there is not much air in it.
14. Male gonads are testes and female gonads are ovaries in human beings.
    Functions of Testes:
    (i) Testes produce sperms, the male haploid gametes.
    (ii) They produce male sex hormones, i.e., testosterone.
    Functions of Ovaries:
    (i) They produce ova, the female haploid gametes.
    (ii) They produce female sex hormones i.e., estrogen and progesterone.
15. (a)



    (b) $R_{eq} = R_1 + R_2 + R_3 = 5 + 10 + 15 = 30\,\Omega$

    $V = V_1 + V_2 + V_3 + V_4 + V_5 = 2 + 2 + 2 + 2 + 2 = 10$ V

    $\therefore \quad I = \dfrac{V}{R_{eq}} = \dfrac{10}{30} = \dfrac{1}{3}$ A

16. The strength of the magnetic field produced at the centre of a circular coil of radius r, having N turns and carrying a current I, is given by:

    $$B = \frac{\mu_o NI}{2r} \text{ tesla}$$

    Thus the strength of the magnetic field in the coil is:

    (i) inversely proportional to the radius of the loop. $\left(B \propto \dfrac{1}{r}\right)$

    (ii) directly proportional to the number of turns. $(B \propto N)$

    (iii) directly proportional to the current passing through it. $(B \propto I)$

17. (a) Methane, Carbon di-oxide, Hydrogen and Hydrogen sulphide
    (b) Advantages of biogas over fossil fuels:
    (i) Biogas burns without smoke and does not cause air pollution while fossil fuel burns and causes air pollution.
    (ii) Biogas does not leave any residue after burning while fossil fuel leaves residue like ash which have a disposal problem.
    (iii) Biogas is cheaper than fossil fuel.
18. (a) Solar panals
    (b) Solar energy.
    (c) Because Rajasthan gets a lot of sunshine throughout the year.
    (d) Solar cell.
    (e) General awareness, concern for the environment to improve it, desire to help people.
19. The containers made up of copper or aluminium is suitable for storing the given solutions, can be decided by studying their reactions:
    (i) Reaction of copper with
        (a) Dil. HCl. Cu + dil. HCl $\longrightarrow$ No reaction.
        So it can be stored in Cu container.
        (b) Dil. HNO_3. Being a strong oxidizing agent, dil. HNO_3 reacts with copper, so it cannot be stored in copper container.
        (c) $ZnCl_2$. Copper is less reactive than zinc so it does not react with $ZnCl_2$ solution. Therefore it can be stored in copper container.
        (d) H_2O. Copper does not react with water. So its container can store H_2O in it.
    (ii) Reaction of ALuminium with
        (a) Dil. HCl. Al reacts with Dil. HCl, so it can not be kept in aluminium container.
        $2Al + 6HCl \longrightarrow 2AlCl_3 + 3H_2$
        (b) Dil. HNO_3. When dil. HNO_3 is kept in Al container, it forms a protective layer of aluminium oxide on it, therefore it can be kept in Al container.
        (c) $ZnCl_2$. Al is more reactive than zinc, so it cannot keep $ZnCl_2$ solution in it.
        $2Al + 3ZnCl_2 \longrightarrow 2AlCl_3 + 3Zn$
        (d) H_2O. Al does not react with water (hot or cold). Therefore water can be kept in Al container.
        Aluminium is attracted by steam to form aluminium oxide and hydrogen.
        $$2Al(s) + 3H_2O(g) \longrightarrow Al_2O_3(g) + 3H_2(g)$$

Or

The reactions of zinc granules with various reagents are as follows:

(i) Dil. H_2SO_4

$$Zn(s) + H_2SO_4(aq) \longrightarrow \underset{\text{Zinc sulphate}}{ZnSO_4(aq)} + H_2(g)$$

(ii) Dil. HCl

$$Zn(s) + 2HCl(aq) \longrightarrow \underset{\text{Zinc sulphate}}{ZnCl_2(aq)} + H_2(g)$$

(iii) Dil. HNO_3

Dil. HNO_3 is an oxidizing acid so its reaction with a metal (e.g. Zn) is different than other dilute acids.

$$4Zn(s) + 10\ HNO_3(aq) \longrightarrow \underset{\text{Zinc Nitrate}}{4ZN(NO_3)_2(aq)} + 5H_2O(l) + \underset{\text{Nitrous oxide}}{N_2O(g)}$$

(iv) NaCl solution

Reaction does not take splace.

$$Zn(s) + NaCl(aq) \longrightarrow \text{No reaction}$$

(v) NaOH solution

$$Zn(s) + 2NaOH(aq) \longrightarrow \underset{\text{Sodium zincate}}{Na_2ZnO_2(aq)} + H_2(g)$$

Thus, hydrogen gas is evolved with H_2SO_4, HCl and NaOH, nitrous oxide gas is evolved with dilute HNO_3 and no reaction takes place with NaCl solution.

20. (a) 'Activity series' of metals is the series in which metals are arranged in decreasing order of theirreactivities.

Mg > Al > Zn > Fe > Cu is in a decreasing order of reactivity.

(b) (i) When zinc is placed in copper sulphate solution, the solution becomes colourless and browncolour copper metal is depicted.

$$Zn(s) + CuSO_4(aq) \longrightarrow ZnSO_4(aq) + Cu(s)$$

(ii) Copper does not react with ferrous sulphate because it is less reactive than iron. No change takes place.

(f) Sodium metal combines with hydrogen to form Sodium hydride.

$2Na + H_2 \longrightarrow 2NaH$ (Sodium hydride)

Or

(i) **Froth Floatation process**: It is the process to concentrate sulphide ore. The ore is mixed with water and pine oil and mixture is agitated with the blast of air. Froth is formed. Sulphide ore gets collected in froth whereas impurities are left behind e.g., Zinc Blende (ZnS) is concentrated by Froth Floatation process.

(ii) **Roasting of an ore**: The process of heating sulphide ore in presence of oxygen so as to convert it into oxide is called roasting, e.g.,

$2ZnS + 3O_2 \longrightarrow 2ZnO + 2SO_2$

(iii) Calcination of an ore: It is defined as heating of ore in absence of oxygen so as to convert it into oxide, e.g.,

$$ZnCO_3 \xrightarrow{\text{heat}} ZnO + CO_2$$

21. **Photosynthesis** is a process in which plants use sunlight, chlorophyll, Carbon di-oxide and water to synthesize food.

It occurs in two stages:

(i) **Light reaction**: During this reaction ATP and NADPH are generated. This step is light dependent.

(ii) **Dark reaction**: It is not dependent on light. During this reaction, carbon di-oxide is produced to carbohydrate. Source of energy is ATP and NADPH.

Factors affecting rate of photosynthesis process:

(i) **Light**: Rate of photosynthesis increases at the low intensities and decreases at its higher intensities.

(ii) **Temperature**: Low and high temperature has inhibitory effect on the rate of photosynthesis.

(iii) **Water**: The rate of photosynthesis will become slow under water deficient conditions.

(iv) **Carbon dioxide**: the rate of photosynthesis increases with an increase in CO_2 concentration up to a certain level beyond that it may prove inhibitory.

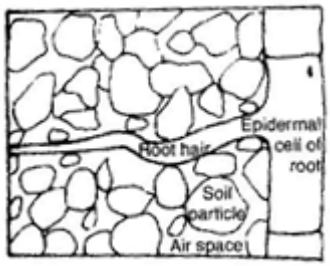
Or

Difference between Respiration in plants and Respiration in animals:

Respiration in plants	Respiration in animals
(i) Plants do not have respiratory system.	(i) Animals have respiratory system.
(ii) Direct diffusion of respiratory gas into the cells.	(ii) The respiratory gases are transported up to the tissue cells.
(iii) Plant respiration occurs at slower rate.	(iii) Animal respiration occurs at faster rate.

Gaseous exchange through root hair in plants:

Roots take up oxygen present in between the soil particles by the process of diffusion. Root hairs, the extension of epidermal cells of root are in contact with oxygen in the soil. Oxygen diffuses into root hairs and passes into other cells of the root. Carbon dioxide from root cells moves out into the soil. Thus, root hair provide increased surface area for gaseous exchange.



22. (i) According to Joule's law of heating, the heat H produced in a wire of resistance R while carrying a current I in time 't' is directly proportional to the square of current, resistance and time.

$$H = I^2Rt$$

Proof: Work done to carry a charge dq against a potential difference V is,

$$dW = Vdq = VIdt \quad \Rightarrow \quad W = VIt = I^2Rt$$

This work done is dissipated as heat energy.

(ii) Commercial unit is kWh.

1 kWh = 3.6×10^6 joules

(iii) Resistance of 40 W bulb = $\frac{220^2}{40}$

Net resistance = 4 x $\frac{220^2}{40}$ = 4840 Ω

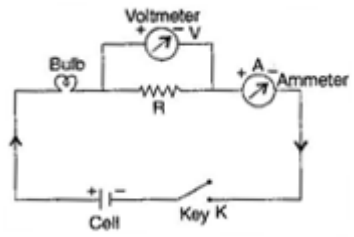
Current drawn and flowing through them = I = $\frac{220}{R}=\frac{220}{4840}$ = 0.045 A

If one bulb fuses, no current flow will be seen in them.

Or

(a) Since resistivity depends neither on the length nor on the cross-sectional area of the conductor, the resistivity will remain unaffected in all variations. Also here material is same.

(b)



23. Electrical energy used by:
    (a) 4 bulbs of 60 W = 4 x 60 x 6 x 30 = 43200 Wh
    (b) 3 tubelights of 40 W = 3 x 40 x 8 x 30 = 28800 Wh
    (c) 300 W refrigerator = 300 x 24 x 30 = 216000 Wh
    (d) 750 W mixer = 750 x 1 x 30 = 22500 Wh
    (e) TV of 100 W = 100 x 6 x 30 = 18000 Wh

    Net energy consumption = 328500 Wh = 328.5 kWh = 328.5 units
    Cost for first 50 units = 2.50 x 50 = Rs.125.00
    Cost for the remaining units = 3.00 x 278.50 = Rs.835.50
    Total cost of electricity consumed = Rs.960.50

Or

(i) **Series**

Net resistance = $R_{60} + R_H$

Where R_{60} is the resistance of 60 W bulb and R_H is the resistance of the heater.

Heat produced with a source of potential V (H) = $\frac{V^2}{R_{60}+R_H}t$

R_{100} – Resistance of 100 W bulb is less than that of R_{60}.

∴ Heat produced in same time '*t*' should be more with 100 W bulb than with 60 W bulb.

(ii) **Parallel**

Net resistance in parallel will be, $R = \frac{R_{60}R_H}{R_{60} + R_H}$

This will be less than R_{60} and R_H.

Heat produced, $H = \frac{V^2}{R}t$

If 60 W is replaced by 100 W bulb, the resistance R will further reduce. So heat produced will be increased.

24. (a) **Magnetic field**: Surrounding a magnet its influence is felt by any other magnetic element. It may be an attractive of a repulsive influence.

(b) The direction of magnetic field at a point is determined by drawing a tangent at that point. The direction of tangent gives the direction of magnetic field.

(c) **Aim**: To demonstrate the direction of the magnetic field generated around a current carrying conductor.

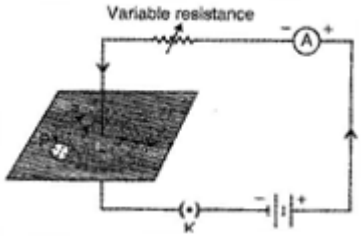
Procedure:

(i) Obtain the concentric circles pattern of iron fillings around the copper wire by flowing current through it as shown.

(ii) Place a magnetic needle (compass) at any point (P) over a circle.

(iii) Observe the direction of needle.

(iv) Show the direction by arrows.



Conclusion: The direction of the north pole of the compass needle would give the direction of the field lines produced by the electric current through the straight wire at that point.

The direction of the field is perpendicular to the plane of the coil and directed inwards for the clockwise current flowing. For anticlockwise current, it will be outwards.

Or

Pure iron is not used for making permanent magnets because it cannot retain their magnetism for long time and used only for electromagnet since alloys of iron and steel have strongly magnetized and have a capacity to hold it for a longer time period, they are used for permanent magnets.

Material used for permanent magnets – ALNICO

Formation of a permanent magnet electrically: Permanent magnets can be formed by placing a hard steel rod in the strong uniform magnetic field produced by the solenoid. Steels have the quality to retain its magnetism after switch off the solenoid current.

Permanent magnets are used in:

(i) Galvanometer (ii) Ammeter

25. The solution remains colourless because HCl is acid and It does not react with phenolphthalein.
26. (a) Transpiration.
    (b) Water loss due to evaporation from the plane is called transpiration.
27. No change will be there i.e. the resistivity 'ρ' will be same because it is a material constant.
28. (b)
29. (b)
30. (a)
31. (b)
32. (b)
33. (c)
34. (a)
35. (c)
36. (b)