

CHAPTER – 1 CROP PRODUCTION AND MANAGEMENT

INTRODUCTORY QUESTIONS

Q1. What is the basic need of life for living organism?

Ans. Food, Air, Water

Q2. What is the role of food in our life?

Ans. Food provides energy for carrying out all body function such as digestion respiration and exertion.

Q3. How do we get our food?

Ans. We get food from plants and animals.

Q4. When plants of the same kind grown at one place on a large scale? What do we call them?

Ans. They are called crop.

KEY WORDS

- a) Weed – unwanted plants
- b) Hybridisation – Technique used for developing new varieties of crops by cross-breeding.
- c) Offspring – Next generation
- d) Crop – Plants of the same kind grown at one place on a large scale
- e) Replenish – To refill, to renew

FILL IN THE BLANKS

1. The same kind of plants grown and cultivated on a large scale at a place is called crop.
2. The first step before growing crops is preparation of the soil.
3. Damaged seeds would float on top of water.
4. For growing a crop, sufficient sunlight and water and nutrients from the soil are essential.

MATCH THE FOLLOWING

COLUMN A	COLUMN B
1. Kharif crops	Urea and super phosphate. (3)
2. Rabi crops	Animal excreta, cow dung urine and plant waste. (4)
3. Chemical fertilizers	Wheat, gram, Pea (2)
4. Organic manure	Paddy and maize. (1)

Give two examples of each:

a. Kharif crop : Jowar, Bajra, Groundnut.

b. Rabi crop : Wheat, Gram, Peas.

Arrange the following boxes in proper order to make a flow chart of sugarcane crop production.

A.

- | | | | |
|------------------------|----------------------|----------------------------------|-------------|
| 1. Preparation of soil | 2. Plough the fields | 3. Sowing | 4. Manuring |
| 5. Irrigation | 6. Harvesting | 7. Sending crop to sugar factory | |

Complete the following word puzzle with the help of clues given below.

Down

- Providing water to the crops.
- Keeping crop grains for a long time under proper condition.
- Certain plants of the same kind grown on a large scale.

Across

- A machine used for cutting the matured crop.
- A rabi crop that is also one of the pulse.
- A process of separating the grain from chaff.

Ans. Down. 1, 2, 5. Across. 3, 4, 5.

SHORT QUESTION ANSWER

Q8. Explain how soil gets affected by the continuous plantation of crops in a field?

A. Plants absorb their mineral nutrients from soil. Repeated growing of crops in some field makes the soil poorer of nutrients. This reduces soil fertility and so crops would be poor.

Q9. What are weeds? How can we control them?

Ans. The unwanted plants that grow naturally along with crop plants are called weeds. Weeds are controlled by using certain chemicals, called weedicides like 2, 4 - D. These are sprayed in the fields to kill the weeds.

LONG QUESTION ANSWER

Q1. Write a paragraph in your own words on each of the following:

Ans. a. Preparation of soil: Soil is the medium for germination of seeds and growth of crop plants. It anchors the roots of the plants and provides those minerals, nutrients, water and oxygen. So selection of soil suitable for a particular crop and proper preparation are essential

for obtaining healthy and bumper crop, soil preparation involves three steps – ploughing, leveling and manuring.

b. Sowing: sowing is the process of putting seeds in the soil selection of good quality seeds and there proper sowing is essential for getting a better yield of crops.

c. Weeding: The removal of weeds is called weeding. Weeding is necessary since weeds compete with the crop plants for water, nutrients, space and light. Thus, they affect the growth of the crop. Some weeds interfere even in harvesting and may be poisonous for animals and human beings.

d. Threshing: In the harvested crop, the grain seeds need to be separated from the chaff. This process is called threshing. This is carried out with the help of a machine called 'combine' which is in fact a combined harvester and thresher.

Q2. What is irrigation? Describe two methods of irrigation which conserve water.

A. The supply of water to crops at different intervals is called irrigation. The time and frequency of irrigation varies from crop to crop, soil to soil and season to season.

Two methods of irrigation are:

a. Furrow irrigation: In this method, water enters the fields through channels or furrows made between two rows of crop plants.

b. Drip system: This system provides water to the plants drop by drop just at their base. i.e. near the roots. The water is not wasted at all and the plants get regular water supply.

Q5. Explain how fertilizers are different from manure.

a. Fertilizers

i. Fertilizers are organic salts or organic compounds prepared in factories.

ii. Fertilizers are nutrient specific and provide specific nutrients to the soil.

iii. Fertilizers are soluble in water and are readily absorb by the plant.

iv. Fertilizers do not provide humans to the soil.

b. Manure

i. Manure is a natural substance obtained by the decomposition of animal waste and residues.

ii. Manure is not nutrient specific. It only removes the general deficiency of soil.

iii. Manure is not readily soluble in water. Thus it is absorbed by the plants slowly.

iv. Manure provides humus to the soil.

EXTRA QUESTION

Q1. Summarize the benefits of using seed drill for sowing seeds.

A. The benefits of using seed drill for sowing seeds are:

- a. Seeds are sown uniformly at proper distance.
- b. Seeds get covered with soil. This prevents the chances of seeds being picked up and eaten by birds.
- c. Sowing by seed drill is faster and saves time and labour.
- d. Sowing by seed drill prevents wastage of seeds due to unequal distribution.

PROJECT

1. Collect different types of seeds and put them in small bags. Attach these bags in a herbarium file and label them.



HOTS QUESTIONS

Q1. How do leguminosae plants make soil fertile?

Ans. Leguminous plants like pea or soybean help in the replenishment of the soil with nitrogen and make the soil fertile.

Q2. A farmer has sown the seeds too deep. What does he likely going to observe? Give reasons.

Ans. The seeds may not grow due to the lack of air.

VALUE BASED QUESTIONS

The farmers of a village are celebrating the harvesting festival Basickhi along with their family members. They are dancing and singing traditional songs.

Q1.What is harvesting? Why do farmers celebrate baisakhi?

Ans. The process of cutting and gathering of crop after its maturation is called harvesting farmer's celebrate baisakhi to express their joy and pleasure for getting the product of their hard work and labour.

Q2.What do we learn from celebrating festivals?

Ans. Togetherness and unity.

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CHAPTER – 2 MICRO ORGANISM: FRIEND AND FOE

INTRODUCTORY QUESTIONS

Q1. Which type of organism present around us?

Ans. Living organism and non living organism.

Q2. We can see all organism with naked eye?

Ans. No

Q3. Which type of device used for seeing these organism like bacteria?

Ans. Microorganism

Q4. In stagnant water which type of green colour organism present?

Ans. (Spirogyra) Microorganism

KEY WORDS

- 1. Microorganism** – Fermentation, protozoa, fungi, blue-green, algae, virus, bacteria, diatom, yeast, mycoplasma, treatment, plasmodium.
- 2. Cyst** – Cells are covered with a hard outer coating and are called cyst.
- 3. Virus** – Viruses are derived from the name of the respective host or from the name of the disease cause.

FILL IN THE BLANKS

1. Microorganisms can be seen with the help of a microscope.
2. Blue green algae fix nitrogen directly from air to enhance fertility of soil.
3. Alcohol is produced with help of yeast.
4. Cholera is caused by bacteria.

TICK THE CORRECT ANSWER

(a) Yeast is used in the production of

- (i) Sugar (ii) alcohol (iii) hydrochloric acid (iv) oxygen

(b) The following is an antibiotic

- (i) Sodium bicarbonate (ii) streptomycin (iii) alcohol (iv) yeast

(c) Carrier of malaria-causing protozoan is

- (i) Female anopheles mosquito (ii) cockroach (iii) housefly (iv) butterfly

(d) the most common carrier of communicable diseases is

- (i) Ant (ii) housefly (iii) dragonfly (iv) spider

(e) The bread or idli dough rises because of

- (i) Heat (ii) grinding (iii) growth of yeast cells (iv) kneading

(f) The process of conversion of sugar into alcohol is called

- (i) Nitrogen fixation (ii) moulding (iii) fermentation (iv) infection

Ans. (a) (i) Alcohol, (b) (ii) streptomycin, (c) (i) Female anopheles mosquito, (d) (ii) housefly, (e) (iii) growth of yeast cells, (f) (iii) fermentation

MATCH THE FOLLOWING

COLOUMN A

1. Bacteria
2. Rhizobium
3. Lactobacillus
4. Yeast
5. A protozoan
6. A virus

COLUMN B

- Causing malaria (5)
Setting of curd (3)
Causing cholera (1)
Causing AIDS (6)
Baking of bread (4)
Fixing nitrogen (2)

SHORT QUESTION ANSWER

Q1. What are the major groups of micro- organisms?

A. The major groups of micro organisms are bacteria, fungi, protozoa and some algae.

Q2. Name the micro organisms which can fix atmospheric nitrogen in the soil.

A. The micro- organisms which can fix atmospheric nitrogen in the soil are nitrobacter and nitrosomonas.

Q3. What are antibiotics? What precautions must be taken while taking antibiotics?

A. The medicines which kill or stop the growth of the disease by causing micro organisms are called antibiotic. Example: streptomycin, erythromycin, and tetracycline.

LONG QUESTION ANSWER

Q1. Write 10 lines on the usefulness of micro organisms in our lives?

A. Micro organisms play an important role in our lives such as:

- a. Yeast is used for commercial production of alcohol and wine from the fruit juice.
- b. Some micro- organisms are used in making pickles.
- c. Bacteria act upon tough muscle fibers of meat and make them tender.
- d. Algae is used as a source of food.
- e. Medicines are prepared by fungi and bacteria.
- f. In jute industry, bacteria are used for separation of jute fibers.

- g. Some bacteria decompose municipal sewage containing urine, jacos and other wastes into useful substances.
- h. Bacteria such as E. coli living in the intestine of a man and other vertebrates synthesize vitamin B complex.
- i. Bacteria are inoculated into cream to make flavoured butter.
- j. Bacteria and fungi decompose complex organic compounds into simple inorganic substances.

Q2. Write a short paragraph on the harm caused by micro organisms.

A. Micro organisms are harmful in many ways. Some of the micro organisms cause diseases in human beings, plants and animals. Such diseases causing micro organisms are called Pathogens. Some micro organisms spoil food, clothing and leather.

EXTRA QUESTION

Q1. Describe nitrogen cycle of fungi?

Ans. The cyclic movement of nitrogen element between living and non- living components of the biosphere is called nitrogen cycle. The main steps of nitrogen cycle are:

- a. Nitrogen fixation : Nitrogen converts into nitrogen compounds.
- b. Nitrogen assimilation : Plants absorb inorganic nitrogen compounds and synthesis of amino acids, proteins and other nitrogenous compounds.
- c. Ammonification : Decomposition of proteins and other nitrogen compounds into Ammonia.
- d. Nitrification : Ammonia and ammonium salts are converted into nitrates.
- e. Denitrification : Nitrates convert into free nitrogen.

Q2. Describe classification of bacteria based on their shape?

A. On the basis of shapes, bacteria are classified into the following types-

- a. Cocei : Spherical shape bacteria
- b. Bacilli : Rod- shaped bacteria
- c. Spirilla : Spiral shaped bacteria
- d. Vibrio : Comma- shaped bacteria

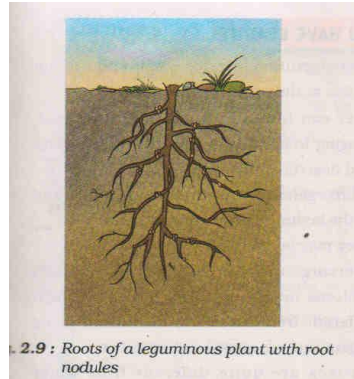
GIVE ONE WORD

- 1. Study of micro- organisms : Microbiology
- 2. The process of conversion of sugar into alcohol by yeast : Fermentation
- 3. Algae that fix free atmospheric nitrogen into nitrates : Anabaina

ACTIVITY

1. Pull out a gram or bean plant from the field. Observe its roots. You will find round structures called root nodules on the roots. Draw a diagram of root and show the root nodules.

Roots of a leguminous plant with root nodules.



HOTS QUESTIONS

Q1. What is the role of microorganism to keep the environment clean?

Ans. Microorganisms decompose dead organic wastes of plants and animals by covering them into harmless simple substances in this way, they help to keep the environment clean.

Q2. Describe the principle on which the following methods of food preservation are based.

- A. Boiling
- B. Canning
- C. Freezing
- D. Dehydration

Ans. a. On high temperature

b. On high temperature and minimum contact of air with food material

c. On low temperature

b. On minimum moisture

VALUE BASED QUESTIONS

Microorganisms decompose dead organic waste of plants and animals and help in keeping the environment clean?

Ques.1 Name any two microorganisms which keep the environment clean by decomposing dead organic wastes?

Ans. Bacteria and fungi.

Ques.2 Being a student how can you contribute in keeping the environment clean by decomposing dead organic waste?

- Ans.** a) Reducing the use of fossil fuels.
b) Planting more and more trees.

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CHAPTER –3 Synthetic, Fibers and Plastics

INTRODUCTORY QUESTIONS

Q1. Can you name the material of which yours shirts and pants are made?

A. These are made of cotton, khadi and some artificial fibers.

Q2. Where do these synthetic fibers come from?

A. These fibers are produced artificially in the factories.

Q3. Can you name some other products made of synthetic fibers?

A. Sweaters, cardigans, polyester, sarees, etc are some other products made of synthetic fibers.

FILL IN THE BLANKS

1. Synthetic fibers are also called polymer or man-made fibers.
2. Synthetic fibers are synthesized from raw material called monomers.
3. Like synthetic fibers, plastic is also a polymer.

MARK THE CORRECT ANSWER

1. Rayon is different from synthetic fibers because

- (a) It has a silk-like appearance.
- (b) It is obtained from wood pulp.
- (c) Its fibers can also be woven like those of natural fibers.

Ans. (b) It is obtained from wood pulp.

MATCH THE FOLLOWING

COLUMN A

COLUMN B

- | | | |
|--------------|---|-----|
| 1. Polyester | Used to make non- stick cook wares | (2) |
| 2. Teflon | Used for making parachutes and stocking | (4) |
| 3. Rayon | Fabrics do not wrinkle easily | (1) |
| 4. Nylon | Prepared by using wood pulp | (3) |

SHORT QUESTION ANSWER

Q1. Explain why some fibers are called synthetic.

Ans. Some fibers are called synthetic because these are man-made fibers. Synthetic fibers are made of small units called monomers. Thousands of monomers join together to form a large unit called polymer.

Q2. Give examples which indicate that nylon fibers are very strong.

Ans. Nylon is used for making ropes and car seat belts which indicate that nylon fibers are very strong.

Q3. Explain why plastic containers are favoured for storing food?

Ans. Plastic containers are favoured for storing food because of their light weight, lower price, good strength, easy handling and plastic does not react with water and air and they are not corroded easily.

Q4. Categorize the materials of the following products into 'can be recycled' and 'cannot be recycled'.

Ans. a. Can be recycled: Plastic toys, carry bags, ball point pens, plastic bowls, plastic covering on electrical wires, plastic chairs.

b. Cannot be recycled: Telephone instruments, cooker handles, electrical switches.

Q5. Rana wants to buy shirts for summer. Should he buy cotton shirts or shirts made from synthetic material? Advise Rana, giving your reason?

A. Rana is advised to buy cotton shirts for summer because cotton absorbs our sweat and keeps us cool, which is the primary need in summers.

Q6. Give examples to show that plastics are non corrosive in nature.

A. We see that different acids are stored in plastic containers; plastic buckets are used in washing clothes with detergents. They remain unaffected by these chemicals.

Q7. Should the handle and bristles of a tooth brush be made of the same material? Explain your answer.

A. The bristles of a tooth brush should be made of any soft material but the handle should be made of some hard material. If the bristles are made of the same hard material then the hard bristles would scratch and can destroy our teeth.

LONG QUESTION ANSWER

Q1. Explain the difference between thermoplastic and thermosetting plastics.

A. a. Thermoplastic: Such plastic which gets deformed easily on heating and can be bent easily are known as thermoplastic. Examples: Polythene, PVC, etc.

b. Thermosetting: Some plastics which when moulded cannot be softened by heating. These are called thermosetting plastics. Examples: Bakelite, melamine, etc.

Q2. Explain why the following are made of thermosetting plastics.

a. Saucepan handles.

b. Electric plugs / switches / plug boards.

A. a. Saucepan handles : Saucepan handles are made up of thermosetting plastics because thermosetting plastic is a poor conductor of heat and do not soften or melt on heating.

b. Electric plugs/ switches/ plug boards: Electric plugs/ switches/ plug boards are also made up of thermosetting plastic because thermosetting plastic is a poor conductor of electricity.

Q3. 'Avoid plastics as far as possible'? Comment on this advice.

A. Avoid plastics as far as possible because the waste created by plastics is not environment friendly. On burning, plastics release poisonous gases, on dumping in the ground they may take years to degenerate. This is because of their non- biodegradable nature.

EXTRA QUESTION

Q1. Manufacturing synthetic fibers is actually helping conservation of forests? Comment

A. We know that our population is increasing every year and so our demand of natural fibers like cotton, jute, flax etc is also increasing proportionality we have fixed area of land for cultivation of plants producing natural fibers in order to meet out this increasing demand more area of land is required this is done by cutting down forest. But the manufacturing of synthetic fibers at large scale has proved to be a good help to conserved forest.

Ques.2 Describe an activity to show that thermoplastic is a poor conductor of electricity

Ans. A thermoplastic (or plastic) is poor conductor of electricity it can be shown by using a plastic wire as a connecting wire in a circuit. In this conditions the bulb will not glow

ACTIVITIES AND PROJECT

1. Organise a debate in the school. Children may be given an option to role play as manufactures of synthetic fabrics or those of fabrics from natural sources. They can then debate on the topic 'My Fabric is Superior'.

Ans. (i). We divide the students in two groups.

1. Natural Fabric
2. Synthetic Fabric

(ii). Then they prepared their topic "My Fabric is Superior".

(iii). Then they debate on this topic in presence of their Subject teacher.

SLOGAN

- Reduce plastics, Save Environment.
- Use of plastics is a hazard for mankind.
- 'P' for poison; 'P' for plastic.
- 4R principle – Reduce, Reuse, Recycle and Recover.

HOTS QUESTIONS

Ques.1 name the monomer of the following polymers:

- a. cellulose b. nylon c. polyester**

Ans. a. glucose

b. amide

c. ester

Ques.2 Give reasons, why?

- Cooking pans have plastic handles.
- Burning of plastic causes air pollution.
- Nylon is used for making climbing ropes.
- Refrigerators have a plastic foam core.
- Electric wires have a plastic covering.
- Bakelite is used for making electric switches.

VALUE BASED QUESTION

Ques.1 Name the fibre which is used in making the climbing rope?

Ans. Nylon

Ques.2 what can we learn from john and his trainer?

Ans. We learn that we can do anything by having strong will and determination. We should not be scared of anything and should make constant efforts to achieve our goal. We should always help others in overcoming their fears.



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CHAPTER – 4 METALS AND NON-METALS

INTRODUCTORY QUESTIONS

Q1. What are these substances which are present around us?

Ans. These are matter.

Q2. Which metal produces sound?

Ans. All the hard metals produce sound like Iron.

Q3. Which is present in the pencil lead?

Ans. Graphite.

KEY WORDS

- a) **Metalloids** – Elements which show the properties of metals as well as nonmetals.
- b) **Metallic Lustre** – Characteristic shine of metals.
- c) **Amphoteric** – The substance which can react with acids as well as with bases
- d) **Hydrides** – Compounds of metals and non-metals with hydrogen

VERY SHORT QUESTION ANSWERS

Ques.1 Saloni took a piece of burning charcoal and collected the gas evolved in a test tube.

a. How will she find the nature of the gas?

A. a. The nature of the gas is Acidic.

b. Write down word equations of all the reactions taking place in this process.

A. b. $C + O_2 \rightarrow CO_2$

Charcoal Carbon dioxide

SHORT QUESTION ANSWERS

Ques.1 GIVE REASONS FOR THE FOLLOWING:

1. Aluminum foils are used to wrap food items.

A. The aluminum foil used for wrapping food because aluminum is malleable i.e. it can be beaten into thin sheets.

2. Immersion rods for heating liquids are made up of metallic substances.

A. Immersion rods for heating liquids are made up of metallic substances because metallic substances have high melting point.

3. Copper cannot displace zinc from its salt solution.

A. Copper cannot displace zinc from its salt solution because copper is less reactive than the zinc in reactivity series of metals.

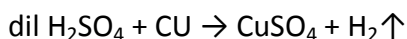
4. Sodium and potassium are stored in kerosene.

A. Sodium and potassium are stored in kerosene because they are very reactive non-metal and catches fire when exposed to air.

Ques.2 WHAT HAPPENS WHEN?

(a) Dilute sulphuric acid is poured on a copper plate.

A. Dilute sulphuric acid is poured on a copper plate. Copper sulphate is produced and hydrogen gas evolved.



Sulphuric acid Copper Copper Hydrogen
sulphate

(b). Iron nails are placed in copper sulphate?

A. When iron nails are placed in copper sulphate. Iron replaces the copper in its salt and form iron sulphate (Ferrous Sulphate) and Copper.



Iron copper Ferrous copper
Sulphate sulphate

Ques.3 One day Reeta went to a jeweller's shop with her mother. Her mother gave old gold jewellery to the goldsmith to polish. Next day when they brought the jewellery back, they found that there was a slight loss in its weight. Can you suggest a reason for the loss in weight?

Ans. The jeweller's dip the jewellery in the solution of acid, which reacts with the outer covering of metals. Thus there is a net loss of weight in the metal of the ornament.

Ques.4 Some properties are listed in the following table. Distinguish between metals and non-metals on the basis of these properties.

Properties	Metals	Non-metals
Appearance		
Hardness		
Malleability		

Ductility		
Heat Conduction		
Conduction of Electricity		

Ans.

Properties	Metals	Non-metals
Appearance	Have metallic luster	Non-metals are dull
Hardness	Hard	Soft
Malleability	Malleable	Not-malleable
Ductility	Ductile	Not-ductile
Heat Conduction	Good conductors	Bad conductor
Conduction of Electricity	Good conductors	Bad conductor/insulator

Ques.5 Can you store lemon pickle in an aluminum utensil? Explain.

A. No, we cannot store lemon pickle in an aluminum utensil because pickle is acidic in nature and it react with aluminum utensil and produce salt and H₂ gas.

EXERCISE

1. Which of the following can be beaten into thin sheets?

- (a) Zinc (b) phosphorus (c) Sulphur (d) Oxygen

Ans. (a) Zinc

2. Which of the following statements is correct?

- (a) All metals are ductile.
 (b) all non –metals are ductile.
 (c) Generally, metals are ductile.
 (d) Some non-metals are ductile.

Ans. (c) Generally, metals are ductile.

3. FILL IN THE BLANKS

1. Phosphorus is a very reactive non – metal.
2. Metals are good conductors of heat and electricity.
3. Iron is more reactive than copper.
4. Metals react with acids to produce hydrogen gas.

4. Mark 'T' if the statement is true and 'F' if it is false.

- (a) Generally, non- metals react with acids.
- (b) Sodium is a very reactive metal.
- (c) Copper displaces zinc from sulphate solution.
- (d) Coal can be drawn into wires.

Ans. (a) False, (b) True, (c) True, (d) False.

5. MATCH THE FOLOWING

COLUMN A

1. Gold
2. Iron
3. Aluminium
4. Carbon
5. Copper
6. Mercury

COLUMN B

- | | |
|---------------|-----|
| Wrapping food | (3) |
| Fuel | (4) |
| Thermometers | (6) |
| Jewellery | (1) |
| Machinery | (2) |
| Electric wire | (5) |

HOTS QUESTIONS

Q1. Which of the following elements would form acidic oxides? a) C, b) Mg, c) S, d) Zn, e) Fe?

Ans. Carbon, Sulphur will form acidic oxides because these two are non metals.

Q2. State any three physical and two chemical properties that prove copper is a metal?

Ans. Physical properties –

I. Malleability

II. Ductility

III. Heat Conductor

Chemical Properties –

I. When copper objects remain in damp air for a long time, it reacts with the CO_2 and water of air to form a green coating of $\text{Cu}(\text{OH})_2$ and CuCO_3 on the surface.

I. $\text{Fe} + \text{CuSO}_4 \rightarrow \text{Cu} + \text{FeSO}_4$

A more reactive (Fe) displaces less reactive metal from CuSO_4 solution.

VALUE BASED QUESTIONS

In the energy source plays guitar for the poor children of this colony. They all enjoy listening to gui.

a) Name the property because of which strings in guitar have to be metal?

Ans. Sonority

b) What should we learn from Sonu?

Ans. Care for the poor and needy spreading happiness.

ACTIVITY

1. Visit a blacksmith and observe how metals are moulded?

A. by beating, for ex- the shape of the iron nail and the aluminum wire changed on beating.

2. Suggest an experiment to compare the conductivity of electricity by iron, copper, aluminum and zinc. Perform the experiment and prepare a short report on the result.

A. Take a nail of given elements and prepare a circuit as shown. Now touch the nail with wire, on touching the ammeter shows deflection which shows that given substances are good conductor of electricity.

