**BASIC TECHNOLOGY JSS 1**

**FIRST TERM**

## SCHEME OF WORK

**WEEK TOPIC**

1. CONCEPT OF TECHNOLOGY & CAREER PROSPECTS IN TECHNOLOGY
2. WORKSHOP SAFETY RULES AND RESOLUTIONS
3. WORKSHOP SAFETY (II)- DEFINITION OF ACCIDENTS
4. SAFETY GUIDELINES- ROAD SIGNS
5. MATERIALS AND PROCESSING - IDENTIFICATION OF WOOD
6. IDENTIFICATION OF METALS
7. IDENTIFICATION OF METALS(II)
8. IDENTIFICATION OF CERAMICS & GLASSES
9. IDENTIFICATION OF RUBBER
10. IDENTIFICATION OF PLASTIC

**WEEK ONE**

**TOPIC: CONCEPT OF TECHNOLOGY**

**Definition of Technology:**

Technology, derived from the Greek words tekhnē (referring to art or craft) and logia (meaning an area of study), can be defined as the systematic application of scientific knowledge to create processes and products that simplify and enhance human life. It encompasses the development of tools and machines, enabling us to fulfill various needs and gain better control over our environment.

Technology serves as the means by which humans design tools and machines to augment their comprehension and manipulation of the material world. It encompasses the study, development, and application of devices, machinery, and techniques for manufacturing and production processes.

Products of Technology:

Technology has transformed our lives, replacing traditional tools like hoes and cutlasses with powered machines driven by steam, water, wind, electricity, and solar energy. Products of technology are the tangible outcomes of engineering endeavors, tools designed to accomplish specific tasks. Examples include pressing irons, tractors, cell phones, air conditioners, grinding machines, gas cookers, washing machines, and electric bulbs, among others.

Economic Activities in Developed and Underdeveloped Technology:

|  |  |  |
| --- | --- | --- |
| Economic Activities | Underdeveloped Technology | Modern Technology |
| Farming | Hoes, Cutlasses, Knives | Tractor, bulldozer, plough and large machinery |
| Fishing | Nets, hooks, and traps | Sophisticated and fast moving fishing vessels |
| Transportation | Trekking, horses, and camels | Cars, railways, aircraft, and ocean liners |
| Communication | Oral messages and letter writing | Telephone, radio messages, television, and telex |
| Food Preservation | Drying, salting, etc | Refrigeration, canning, etc. |
| Agricultural | Manure and animal faeces | Fertilizers |
|  |  |  |

**Importance of Technology:**

1. Encourages creativity in students.

2. Provides a solid foundation for future training in pre-vocational subjects.

3. Prepares students with basic technological literacy.

4. Enhances technological growth from the grassroots.

5. Fosters self-reliance in individuals.

**Basic Units of Technology:**

1. Basic Electricity & Electronics

2. Auto-Mechanical & Mechanical Engineering

3. Woodwork

4. Metalwork

5. Technical Drawing

6. Building Construction

**Career Prospects in Technology:**

The field of technology offers diverse career opportunities, including mechanical engineering, electrical engineering, electronics engineering, computer engineering, telecommunication engineering, civil engineering, building engineering, chemical engineering, aeronautical engineering, architecture, and more.

**Evaluation:**

1. Explain the differences in economic activities between developed and underdeveloped technology.

2. List five importance of technology.

**Weekend Assignment:**

1. What are the processes (methods) and products (materials) that make life easy and stress-free?

(a) Machine

(b) Tool

(c) Equipment

(d) Technology

2. Technology is derived from the Greek words tekhnē, which refers to

(a) art or craft

(b) test

(c) training

(d) trash.

3. Which of the following is NOT a product of technology?

(a) Stone

(b) Microwave

(c) Aircraft

(d) Computer

4. Which of the following is NOT considered modern technology?

(a) Cars

(b) Mobile phones

(c) Tractors

(d) Hoes

5. Which of the following statements is NOT an importance of technology?

(a) It encourages creativity in students.

(b) It provides students with a solid foundation for future training in pre-vocational subjects.

(c) It prepares students with basic technological literacy.

(d) It encourages waste of resources.

**Theory:**

1. Define technology.

2. List 10 products of technology.

3. Explain the differences in economic activities in developed and underdeveloped technology.

**WEEK TWO**

TOPIC: WORKSHOP SAFETY RULES AND RESOLUTIONS

Workshop Layout:

A workshop is a facility where various activities, such as fabrication, design, construction, and drawing, take place. It comprises an office, restroom, machine section, and storage area. Essential elements within the workshop include workbenches, machines, and a first aid kit.

Workshop Safety Rules and Regulations for Bench Workers:

Safety is paramount and involves protection from any risk of harm or injury. Bench workers should adhere to the following rules and regulations:

1. Perform all activities with care and caution.

2. Report all accidents, regardless of their severity.

3. Wear goggles and nose masks when engaged in welding, drilling, or cutting metal or wood.

4. Return tools and accessories to their designated storage areas after use.

Workshop Safety Rules and Regulations for Machines:

1. Wear safety goggles to shield the eyes from flying particles during machining operations.

2. Avoid loose clothing to prevent entanglement with rotating machine parts.

3. Ensure machines are in proper working order before operation.

4. Do not attempt to remove chips from the machine with your hands.

5. Never try to stop machines with your hands, even when the power is switched off.

6. Avoid touching any moving machine parts and refrain from leaning on them.

7. Clean the workshop and machines daily after work.

8. Students must maintain proper behavior and conduct themselves responsibly while in the workshop.

Evaluation:

1. Provide a simple basic workshop layout.

2. State five safety rules and regulations for (a) bench workers and (b) machines.

Workshop Safety Devices:

To ensure workshop safety, practical safety devices should be provided and used to protect different parts of the body. These devices include:

1. Hand gloves: To protect the palms and fingers.

2. Safety goggles or shields: To safeguard the eyes.

3. Boots or hard sole shoes: For protection of the legs, feet, and toes.

4. Helmets: To protect the head.

5. Overalls: For general body protection, covering the chest and body.

6. Nose masks: To prevent inhalation of dust.

7. Fire extinguishers and sand buckets: Essential for extinguishing fires and safeguarding lives and property.

Evaluation:

1. List five (5) workshop safety devices.

2. Explain their uses.

Weekend Assignment:

1. A workshop is a place where activities such as fabrication, designing, construction, and drawing take place.

(a) Factory

(b) Hospital

(c) Hostel

(d) Workshop

2. Safety means protection from, or not being exposed to, the risk of harm or injury.

(a) Methodology

(b) Skill

(c) Safety

(d) Technology

3. An accident is a negative experience that happens to somebody when he does not expect it.

(a) An accident

(b) Disease

(c) Fire outbreak

(d) Electrical sparking

4. The following are causes of accidents except:

(a) Using appropriate safety devices

(b) Lack of concentration

(c) Horseplay

(d) Lack of carefulness in handling machines

5. \_\_\_\_\_\_ are to be used to stop fire from destroying lives.

(a) Extinguishers and a bucket of sand

(b) Helmets

(c) Boots

(d) Goggles

Theory:

1. Create a typical Basic Technology workshop layout.

2. Enumerate five (5) workshop safety precautions.

3. List five (5) workshop safety devices and describe their uses.

**WEEK THREE**

**TOPIC: WORKSHOP SAFETY (II)- DEFINITION OF ACCIDENTS**

Topic: Workshop Safety II - Understanding Accidents

Content:

1. Definition of accident

2. Causes of accidents

3. Accident prevention

4. Fire

Definition of Accident:

An accident is an unexpected event that occurs without an apparent cause, resulting in a negative experience for someone who did not anticipate it. Accidents can be caused by both human actions and equipment failures.

Causes of Accidents:

Accidents in the workshop can be categorized into two major groups:

(i) Unsafe actions

(ii) Unsafe conditions

Unsafe Actions:

Accidents caused by unsafe actions include:

- Lack of concentration

- Engaging in horseplay

- Carelessness when handling machines

- Fatigue or tiredness

- Failure to use safety devices

Unsafe Conditions:

Accidents caused by unsafe conditions involve:

- Malfunctioning or faulty machines

- Slippery or wet floors

- Absence of safety devices

- Neglecting tool maintenance

- Working in the workshop while tired or sick

Evaluation:

1. What is the definition of an accident?

2. List five (5) causes of accidents.

Accident Prevention:

To prevent accidents in the workshop, it's crucial to follow these safety measures:

- Maintain a clean and tidy workshop environment

- Avoid horseplay or any behavior that can lead to accidents

- Dress appropriately and safely for work

- Use hand tools with care and follow safety guidelines

- Operate machines safely and adhere to safety protocols

- Exercise caution when using electrical tools, machines, and appliances

- Handle hot materials with care

- Always prioritize safety and be vigilant.

Types of Fire:

In a workshop, two main types of fires can occur:

1. Electrical fire

2. Chemical fire

Electrical Fire:

Electrical fires may result from:

- Sparks caused by short circuits or partial contact

- Poor wiring

- Incorrect electrical connections

- Overloading electrical circuits

- Failing to switch off electrical appliances after use

Electrical fires can be extinguished using fire extinguishers, water, or dry sand.

Chemical Fire:

Chemical fires are caused by the presence of flammable chemicals used or stored in the workshop, such as gas, oil, and grease. It is essential not to use water to extinguish chemical fires. Instead, use foam, dry sand, or gas from a fire extinguisher.

Evaluation:

1. How can accidents be prevented in a workshop?

2. List two types of fires that can occur in a workshop.

Weekend Assignment:

1. A workshop is a place where activities such as fabrication, designing, construction, and drawing take place.

(a) Factory

(b) Hospital

(c) Hostel

(d) Workshop

2. Safety means protection from, or not being exposed to, the risk of harm or injury.

(a) Methodology

(b) Skill

(c) Safety

(d) Technology

3. An accident is a negative experience that happens to somebody when he does not expect it.

(a) An accident

(b) Disease

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4. The following are causes of accidents except:

(a) Using appropriate safety devices

(b) Lack of concentration

(c) Horseplay

(d) Lack of carefulness in handling machines

5. \_\_\_\_\_\_ are to be used to stop fire from destroying lives.

(a) Extinguishers and a bucket of sand

(b) Helmets

(c) Boots

(d) Goggles

Theory:

1. Create a typical Basic Technology workshop layout.

2. Enumerate five (5) workshop safety precautions.

3. List five (5) workshop safety devices and describe their uses.

**WEEK FOUR**

**TOPIC: SAFETY GUIDELINES- ROAD SIGNS**

Content:

1. Definition of road signs

2. Types of road signs in Nigeria

Definition of Road Signs:

Road or traffic signs are informational tools that provide instructions and information to road users. These signs convey essential information about traffic regulations, potential hazards, road conditions, speed limits, construction zones, and more. To ensure road safety, it is important not only to understand the meaning of each sign but also to recognize them by their unique shapes and colors.

Types of Road Signs in Nigeria:

Road signs in Nigeria can be categorized into three main types:

1. Regulatory Signs:

- These signs are primarily circular in shape and can be further divided into two types:

- Signs with red and yellow circles: These are prohibitive signs, indicating actions that are not allowed.

- Signs with blue circles but no red border: These are mandatory signs, providing positive instructions and regulations that must be followed.

2. Informative Signs:

- Informative signs are typically rectangular in shape and offer guidance and information to road users. For example, the stop sign is a prohibitive sign that instructs drivers to come to a complete stop before proceeding when it is safe to do so.

3. Warning Signs:

- Warning signs are generally triangular in shape and feature a red perimeter. The inverted triangle warning sign indicates that drivers should yield or give way to other traffic.

Examples of Road Signs in Nigeria:

I. Regulatory Signs (Prohibitory):

II. Warning Signs:

III. Regulatory Signs (Mandatory - Direction to Be Followed):

Weekend Assignment:

1. What is the definition of road signs?

2. State the types of road signs in Nigeria.

3. Create drawings of ten different road signs and explain their meanings.

Theory:

1. Develop a comprehensive list of the prohibitory and mandatory road signs in Nigeria.

2. Describe the importance of understanding and following road signs for road safety.

**WEEK FIVE**

**TOPIC: MATERIALS AND PROCESSING-IDENTIFICATION OF WOOD**

Content:

1. Identification of Wood

2. The Internal Structure of Wood

3. Major Parts of a Tree (External)

4. Types of Wood

5. Uses of Wood

Identification of Wood:

Wood is a sturdy fibrous material primarily obtained from trees and shrubs, located beneath their bark. Different types of wood can be identified by factors such as:

- Color

- Classification into soft and hard woods

- Physical properties, with hardwoods typically having broad leaves and softwoods having needle-like leaves.

The Internal Structure of Wood:

The internal structure of wood comprises several components, including:

1. Pith

2. Xylem

3. Phloem

4. Cambium

5. Cork cambium

6. Bark

Major Parts of a Tree (External):

A tree consists of various external parts, including:

1. Roots

2. Trunk (branches)

3. Leaves

4. Flowers

5. Seeds

As trees grow, their trunks become larger, and these trunks are harvested and processed into wood or timber.

Types of Wood:

There are two main classes of wood:

1. Hardwood:

- Dark in color

- Obtained from deciduous trees

- Complex cellular structure

- Heavy

- Typically has broad leaves

- Examples include Iroko, Afara, Mahogany, Opepe, and Omo

- Used for furniture making and building construction.

2. Softwood:

- Lighter in color compared to hardwood

- Not as heavy

- Easy to work with

- Obtained from coniferous trees

- Typically has narrow, needle-like leaves

- Often evergreen

- Examples include spruce, pine, cedar, cypress

- These trees bear naked seeds called cones and thrive in temperate regions.

Uses of Wood:

Wood plays a significant role in various industries and processes, including:

1. Housing: Used for home furniture, doors, windows, and roofing.

2. Industrial Buildings: Many industries are constructed using wood.

3. Joinery: Utilized for making staircases in buildings.

4. Packaging: Essential for creating crates, pallets, and packaging for electronic equipment.

5. Furniture: Commonly used for chairs, beds, wardrobes, tables, and bookcases.

6. Transport: Used in railway carriages, train wagons, and lorry bodies.

7. Bridges and Poles: Some farm bridges and road bridges in villages are made of wood. Electric poles and railway sleepers are also made from wood.

8. Pulp and Paper: Used in the production of exercise books, textbooks, magazines, and other paper products.

9. Medicine: Artificial limbs made from wood are used to replace amputated limbs.

10. Clothing: Wooden heels and soles are used in some shoes, such as rayon stockings.

11. Tool Making: Wood is used for handles of hammers, pickaxes, felling axes, screwdrivers, and various other tools.

Weekend Assignment:

1. What is the definition of wood?

2. State the types of wood.

3. Create drawings of ten different road signs and explain their meanings.

Theory:

1. Explain the significance of wood as a material for technology.

2. Draw the major external parts of a tree.

3. Enumerate and provide examples of the types of wood.

4. Illustrate the internal structure of wood.

**WEEK SIX AND SEVEN**

**TOPIC: IDENTIFICATION OF METALS**

Content:

1. Definition and Properties of Metals

2. Classes of Metals

3. Processing of Metals

4. Uses of Metals

**Definition of Metals:**

Metals are a category of solid mineral substances characterized by their typically hard and shiny nature. They possess the ability to conduct heat and electricity.

Metals exhibit properties that set them apart from non-metals such as wood, plastics, ceramics, rubber, and more.

Properties of Metals:

Metals can be identified by various physical properties, including:

1. Conductivity: Some metals efficiently conduct heat and electricity.

2. Fusibility: Certain metals can be melted and cast into various shapes.

3. Magnetism: Some metals have the capacity to attract iron.

4. Ductility: Specific metals can be drawn or stretched into wires without breaking.

5. Brittleness: Certain metals tend to break or crack when subjected to force.

6. Malleability: Some metals can be hammered or beaten into desired shapes without cracking.

7. Toughness: Certain metals can withstand bending, breaking, cracking, or stretching.

8. Density: Metals possess weight relative to their volume.

9. Lustre (Color): Metals can have a shiny appearance when polished.

Classes of Metals:

Metals used in engineering are categorized into two main classes:

1. Ferrous Metals and Their Alloys: This group includes metals that contain iron and are therefore magnetic. Examples include wrought iron, cast iron, and various steel grades.

2. Non-ferrous Metals and Their Alloys: This category comprises metals without iron and is non-magnetic. Examples include aluminum, copper, brass, and more.

Processing of Metals:

Metals are typically not found in a pure state and are usually combined with other metals and impurities in the form of mineral ore. The extraction process varies for each metal:

1. Casting: The process of melting and pouring molten metal into a mold, allowing it to cool and solidify in the desired shape.

2. Smelting: Extracting metals from iron ore obtained from mining.

3. Annealing: A method used to soften metals.

Uses of Metals:

Metals find extensive applications across various industries, including:

1. Housing: Used in construction for structural components and roofing.

2. Transportation: Metals are integral in vehicles, trains, aircraft, and ships.

3. Electronics: Essential in electronic devices, wiring, and circuits.

4. Machinery: Metals are used to build machinery and engines.

5. Infrastructure: Used in bridges, pipelines, and other critical infrastructure projects.

6. Manufacturing: Metal is used in manufacturing processes, such as machining and welding.

7. Packaging: Metals are used to make containers and packaging materials.

8. Energy Production: Key in power generation, such as in turbines and generators.

9. Medicine: Used in medical instruments and devices.

10. Tools and Equipment: Many tools and equipment have metal components.

Evaluation:

1. State five properties of metals.

2. Explain the differences between ferrous and non-ferrous metals.

Weekend Assignment:

1. What are the major types of metals used in engineering?

2. Provide examples of metals known for their malleability.

Theory:

1. Discuss the significance of metals in various industries.

2. Describe the casting process used for metals.

3. Explain the concept of smelting and its role in metal extraction.

**USES OF METAL**

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| --- | --- | --- |
| Alloy metal | composition | Properties |
| Brass | 65%copper and 35%zinc | Soft material |
| Gilding metal | 80% copper and 20 % zinc | Polishes well and no corrosion |
| Bell metal | 78% copper and 22% zinc | Louder in sound than other metals |

|  |  |
| --- | --- |
| Ferrous metals | Uses |
| Cast iron | Cast iron in the manufacturing of machine parts , pipes, radiators, stoves, engine blocks |
| Carbon steel | Carbon steels are used in the manufacturing of the automobile bodies gears, hacksaws ,hammers ,drill, knives |
| Alloy steels | Alloy steels are used in the manufacturing of cables, steels, rail, wires , springs , shoves, ball-bearing, chisels etc. |
| Wrought Iron | The wrought iron is used in the manufacturing of nails ,horse shoes, pipe ,wires, roofing sheets |

|  |  |
| --- | --- |
| Non-ferrous metal | Uses |
| Aluminium | Aluminium is used for manufacturing aircraft, cooking pots for its lightness. |
| Copper | Copper is used for making telephone wires, water heater, pipes ,electric cables. |
| Zinc | Zinc is used for the coating of iron and steel as a protection against rusting .It is used for wire-fence ,water tank reservoir ,bucket. |
| Brass | Brass is for making musical instrument screws clocks. |
| Silver | Silver is for ornament work ,mirror . |
| Nickel | Nickel is used for plating iron and materials to give a shining slivering appearance . It is also used for making cooking pots and sauce pan. |
| Lead | Lead is used for making lead pipes , storage batteries , chemicals and cover electric cables. |
| Tin | Tin is used for making engine bearing, ball-bearing medals, coins , statues and collapsible tubes. |

Evaluation:

1. Explain the following methods of metal processing: (i) annealing, (ii) smelting, (iii) casting.

2. State the uses of the following metals: (i) alloy metals, (ii) ferrous metals, (iii) non-ferrous metals.

Weekend Assignment:

1. What is a type of solid mineral substance that is usually hard and shiny and allows heat and electricity to travel through it? (a) Plastic (b) Rubber (c) Metal (d) Ceramics

2. Some metals have the ability to be hammered or beaten into shape without cracking. This quality is known as: (a) malleability (b) ductility (c) toughness (d) fusibility

3. The group of metals that contains iron is known as: (a) ferrous metals (b) non-ferrous metals (c) alloys (d) terrazzo

4. The group of metals that has no iron and is not magnetic includes examples like: (a) aluminum (b) copper (c) steel (d) brass

5. \_\_\_\_\_\_ is the process by which metals can be softened. (a) Casting (b) Smelting (c) Annealing (d) Riveting

Theory:

1. Define and outline the properties of metals.

2. Explain the classes of metals with relevant examples.

3. Elaborate on the following methods of metal processing: (i) annealing, (ii) smelting, (iii) casting.

4. Describe the uses of the following metals: (i) alloy metals, (ii) ferrous metals, (iii) non-ferrous metals.

**WEEK EIGHT**

**TOPIC: IDENTIFICATION OF CERAMICS & GLASSES**

Ceramics represent a category of materials known for their hardness, brittleness, and resistance to high temperatures. These materials are crafted by subjecting a mixture of clay and chemicals to intense heat. Ceramic products encompass a diverse range of items, including clay pots, marbles, tiles, water-closets, water jugs, glassware, and water basins.

Properties of Ceramic Materials:

1. Corrosion Resistance:Ceramics exhibit an exceptional resistance to corrosion.

2. High-Temperature Tolerance: They can withstand extremely high temperatures, making them suitable for applications such as furnaces and ovens.

3. Electrical Insulation: Ceramics are electrically resistant.

4. Hardness and Strength:Typically, ceramics are characterized by their hardness and strength.

5. Compressive Strength:They excel in compressive strength, resisting external pressure.

6. Moldability:In their wet state, ceramics can be easily molded.

7. Fragility:Ceramics tend to break easily upon impact with a hard surface.

Evaluation Questions:

1. Define ceramics.

2. List five properties of ceramics.

GLASS MATERIALS AND PROPERTIES

Glass, a subtype of ceramics, is a hard, often transparent material manufactured from sand, lime, potash, soda, and lead oxide. To produce glass, these raw materials are mixed and then melted in a furnace. The molten glass is shaped into various objects.

Glass Production Process:

1. Raw Material Mixing

2. Heating (Firing) to create molten glass.

3. Cooling to solidify the glass.

4. Annealing:Further heating and gradual cooling.

Properties of Glass:

1. Brittleness: Glass is inherently brittle and prone to breaking under stress.

2. Transparency: It is transparent, allowing light to pass through.

3. Corrosion Resistance: Glass is resistant to corrosion.

Glass products span a wide range, including cups, bottles, mirrors, glass tubes, light bulbs, windows, doors, eyeglasses, and lenses.

Evaluation Questions:

1. What are the primary materials used in making glass?

2. List three properties of glass.

WEEKEND ASSIGNMENT

1. Among the following materials, which one is not used in making glass?

(a) Sand (b) Lime (c) Potash (d) Clay

2. Glass is utilized in the production of eyeglasses and lenses primarily due to which property? Choose from the options.

(a) Brittleness (b) Resistance to corrosion (c) Transparency (d) Resistance to heat.

3. Which of the following materials is not typically used in making ceramics?

(a) Lime (b) Cement (c) Mud (d) Clay

4. Among the provided options, which one is not a product of ceramics?

(a) Flower vase (b) Tiles (c) Washbasin (d) Electric bulb.

THEORY

1. Define ceramics and glass.

2. List two key differences between ceramics and glass.

**WEEK NINE AND TEN**

**TOPIC: IDENTIFICATION OF PLASTIC AND RUBBER**

Plastic is a lightweight material produced through chemical processes, and it can be molded into various shapes when heated. Plastic materials are created by melting specific chemicals together and allowing them to solidify.

Classes of Plastic:

1. Thermoplastics: These plastics become soft and pliable when heated without altering their intrinsic properties. Examples include polystyrene and polyethylene. Thermoplastics are unaffected by heat and can be reshaped. Common applications include plastic plates, buckets, and cups.

2. Thermosets: These are polymers that permanently set when heated and cannot be reshaped. For instance, plastic handles on cooking utensils and knives, as well as telephone parts, fall under this category.

Properties of Plastic:

1. Lightweight: Plastics are remarkably light.

2. Affordability: They are generally inexpensive.

3. Insulators: Plastics are good insulators.

4. Corrosion Resistance:They resist corrosion.

Advantages of Plastics:

1. Lightweight:Plastics are lightweight materials.

2. Moldability: They can be molded into diverse shapes and sizes.

3. Cost-Effective: Plastics are relatively inexpensive to produce.

Disadvantages of Plastics:

1. Toxic Fumes: Some plastics emit poisonous fumes when burned.

2. Environmental Impact: Plastics contribute to environmental litter.

Evaluation Questions:

1. State three (3) properties of ceramics.

2. State three (3) properties of plastics.

RUBBER MATERIAL AND USES

Rubber is a non-metallic product that resembles plastic but is notably more elastic. It easily stretches and returns to its original length when released. Rubber is impermeable to water and can float on it. There are two types of rubber: natural and synthetic.

Natural rubber is derived from a milky liquid called latex, extracted from rubber trees. Synthetic rubber, on the other hand, is produced from organic materials obtained from petroleum.

Uses of Rubber:

1. It is used in manufacturing vehicle tires, hand gloves, and electrical insulation.

2. Rubber is employed to create items such as buckets, raincoats, rain boots, and catapults.

3. Due to its elasticity, waterproof nature, and shock-absorbing properties, rubber is widely used in various applications.

Methods of Processing Plastics and Rubber

Both plastics and rubber can be processed using similar methods, which include:

1. Vacuum Forming

2. Extrusion

3. Calendaring

4. Compression Molding

5. Injection Molding

Evaluation Questions:

1. Define rubber materials and state three (3) uses of rubber.

2. State the common methods of processing plastics and rubber.

WEEKEND ASSIGNMENT

1 Which of the following materials is described as a hard, brittle, heat-resistant material made by firing a mixture of clay and chemicals at high temperature?

(a) Plastic (b) Rubber (c) Ceramic (d) Wood

2. The following are properties of ceramics, except:

(a) Ceramics are resistant to corrosion.

(b) They can withstand very high temperatures.

(c) They are electrical resistant.

(d) Ceramics are not brittle.

3 What is described as a lightweight material produced through chemical processes, which can be formed into shapes when heated?

(a) Rubber (b) Plastic (c) Metal (d) Wood

4. Which type of plastic materials become soft and pliable when heated without a change in their intrinsic properties?

(a) Thermometers (b) Thermoengine (c) Thermosets (d) Thermoplastics

5. Rubber can be processed by the following methods, except:

(a) Vacuum forming (b) Extrusion (c) Calendaring and Compression Molding (d) Injection molding

THEORY

1. Distinguish between thermosets and thermoplastic materials.

2. Define rubber materials and describe their uses.