

KUULCHAT 2025 J.H.S CAREER TECHNOLOGY MOCK II

Essay and Objective

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PAPER 1 OBJECTIVE TEST

1. Akweley's academic performance is poor because she misses school often due to illness. Akweley can improve her grades when she practices
- | | |
|-------------------|--------------------|
| A. healthy work | B. staying healthy |
| C. staying active | D. safety |

ANSWER: B

SOLUTION

Staying healthy is the state of physical, mental, and social wellbeing, and as a resource for living a full life. Thus exercising the body, having enough rest, eating a balanced diet, avoiding drug abuse and negative peer pressure.

2. Ama felt unwell after eating rice from the school canteen. The doctor confirmed it was food poisoning. Ama might exhibit the following symptoms **except**
- | | |
|-------------|-------------|
| A. sneezing | B. vomiting |
| C. diarrhea | D. nausea |

ANSWER: A

3. Which of the following is **not** a compliant material?
- | | |
|----------|-----------|
| A. paper | B. card |
| C. metal | D. fabric |

ANSWER: C

4. A student is to produce a sportswear. Which type of material would be the **best** choice?

- | | | | |
|----|-----------|----|--------|
| A. | Compliant | B. | Modern |
| C. | Resistant | D. | Smart |

ANSWER: B

SOLUTION

Modern materials are materials developed through the invention of new or improved process to have improved properties and are used for sportswear, medical and safety wear, and fashion clothing.

5. What is the definition of a smart material?

- | | | | |
|----|--|----|---|
| A. | A material that can hold data | B. | A material that can withstand excessive force |
| C. | A material that reacts to changes in the environment | D. | A material that shrinks when heated |

ANSWER: C

6. Which of the following metal categories is prone to rust?

- | | | | |
|----|----------------|----|--------------------|
| A. | Ferrous metals | B. | Non-ferrous metals |
| C. | Alloys | D. | Smart alloys |

ANSWER: A

7. In the morning when Moro was brushing his teeth, he decided to analyze the materials that were used to produce the tooth brush. Tell Moro the material that was used to produce the bristles of the tooth brush by selecting the material in the options below.

- | | | | |
|----|---------|----|----------------------------|
| A. | Acrylic | B. | Bakelite |
| C. | Nylon | D. | Polyvinyl Chloride (P.V.C) |

ANSWER: C

8. In a career technology class, the teacher asked the students what *gluten* is. Which of the following **best** answers the question?

- | | | | |
|----|--|----|--|
| A. | Gluten is a starch extracted from the storage roots of the cassava plant | B. | Gluten is a protein naturally found in some grains such as wheat, barley and rye |
| C. | Gluten is a starch extracted from the starchy portion of corn kernels | D. | Gluten is a starch extracted from the storage roots of the yam plant |

ANSWER: B

9. In drawing, titles should be high.

- | | | | |
|----|------|----|------|
| A. | 6 mm | B. | 7 mm |
| C. | 8 mm | D. | 9 mm |

ANSWER: C

10. Food eaten in between breakfast and lunch is known as

- | | | | |
|----|--------|----|--------|
| A. | super | B. | snack |
| C. | brunch | D. | dinner |

ANSWER: C

11. The inability for one to breath is known as

- | | | | |
|----|-------------------------------------|----|-------------|
| A. | deoxidation | B. | suffocation |
| C. | Cardiopulmonary resuscitation (CPR) | D. | choking |

ANSWER: B

12. In design, the process used to determine the strengths and weaknesses of an article is

- | | | | |
|----|-------------|----|--------------|
| A. | analysing | B. | testing |
| C. | realisation | D. | modification |

ANSWER: B

13. Which of the following materials is a ferrous metal?

- | | | | |
|----|--------|----|-----------|
| A. | Lead | B. | Steel |
| C. | Copper | D. | Aluminium |

ANSWER: B

SOLUTION

Ferrous metals are materials primarily composed of iron, often with other elements like carbon, nickel, or chromium. They are known for their strength, magnetic properties, and tendency to rust, except for certain alloys like stainless steel. Common examples include steel, cast iron, and wrought iron.

Note

Steel is an alloy of **iron** and carbon.

14. Which of the following applies to a two-perspective drawing?

- | | | | |
|----|--------------------------------|----|------------------------|
| A. | Angle of projection is 30 | B. | Angle of project is 60 |
| C. | Object is viewed from a corner | D. | Front view is drawn |

ANSWER: C

15. The **most** appropriate surface finish for a garden chair is

- | | | | |
|----|------------|----|----------------|
| A. | wax polish | B. | emulsion paint |
| C. | oil paint | D. | sanding sealer |

ANSWER: C

16. Which of the following is the **most** appropriate instrument for drawing objects in oblique?

- | | | | |
|----|---------------|----|--------------------|
| A. | 30 set square | B. | 45 set square |
| C. | Ruler | D. | A pair of dividers |

ANSWER: B

SOLUTION

An oblique drawing is a type of technical drawing that projects a three-dimensional object onto a two-dimensional plane, with one view (the front) shown in true proportion and other views (sides and top) shown at an angle, typically **45 degrees**, and often with receding lines drawn at half their size. It's a simple method for visualizing objects in 3D, offering a quick representation of their shape and form.

17. In orthographic projection, the plan is projected onto the
- | | |
|-------------------|---------------------|
| A. vertical plane | B. horizontal plane |
| C. side plane | D. auxiliary plan |

ANSWER: B

18. Which of the following is a thermoplastic material?
- | | |
|-----------------------|--------------------------|
| A. Polyester resin | B. Phenol formaldehyde |
| C. Polyvinyl chloride | D. Melamine formaldehyde |

ANSWER: C

19. Which of the following is a neatening stitch?
- | | |
|----------------|------------|
| A. Overcasting | B. Feather |
| C. Chain | D. Stem |

ANSWER: A

20. Which of the following is a dry method of cooking?
- | | |
|------------|-------------|
| A. Boiling | B. Baking |
| C. Stewing | D. Steaming |

ANSWER: B

21. Which of the following lines is used to show visible outlines?
- | | |
|---------------------|--------------------|
| A. Short dashes | B. Long chain |
| C. Thick continuous | D. Thin continuous |

ANSWER: C

22. In design analysis, the size of the unit is considered under
- | | |
|-----------|---------------|
| A. cost | B. ergonomics |
| C. safety | D. function |

ANSWER: B

23. The factors to consider when setting up a sewing business include
- | | | | |
|----|--|----|--|
| A. | capital, location and personal needs | B. | capital, location and equipment |
| C. | raw materials, market and business risks | D. | raw materials, personal needs and demand |

ANSWER: B

24. Which of the following is **not** a mechanical property of metals?

- | | | | |
|----|-------------|----|--------------|
| A. | Brittleness | B. | Ductility |
| C. | Corrosion | D. | Malleability |

ANSWER: C

SOLUTION

Brittleness is a material's tendency to easily break, crack, or snap. Brittleness can occur in metals, ceramics, plastics, glass, and composite

Ductility is a material property that describes how much a metal can be stretched or drawn into a thin wire without breaking. It's the ability of a metal to undergo significant plastic deformation under tensile stress before fracturing. Metals like gold, copper, and steel are examples of ductile metals.

Corrosion is the degradation of a metal due to **chemical** or **electrochemical** reactions with its environment, leading to the conversion of the metal into a more stable form, often an oxide. This natural process is often undesirable because it weakens the metal and can lead to structural failure.

Malleability is a physical property of metals that describes their ability to be hammered, pressed, or rolled into thin sheets or different shapes without fracturing. This characteristic is crucial in various manufacturing processes like forging, stamping, and rolling. Highly malleable metals like gold and silver can be easily shaped into foil, coins, and jewelry.

25. The plastic used for making an egg box is?

- | | | | |
|----|---------|----|-------------|
| A. | Acrylic | B. | Polystyrene |
| C. | Nylon | D. | Polythene |

ANSWER: B

26. Which of the following instruments are **most** suitable for dividing a circle into equal parts?
- I. Set square
 - II. Protractor
 - III. A pair of compasses
- A. I and II only B. I and III only
- C. II and III only D. I, II and III

ANSWER: B

27. Crockery is a collection of
- A. forks and spoons B. glasses and spoons
- C. plates and forks D. plates and glasses

ANSWER: D

SOLUTION

Crockery is a collection of plates, dishes, cups, and other similar items, especially ones made of earthenware or china.

28. In designing, possible solutions are generated by the use of
- I. observation
 - II. drawing
 - III. sketches
- Which of the above options are **correct**?
- A. I and II only B. II and III only
- C. I and III only D. I, II and III

ANSWER: B

29. Drawing of an object starts with
- A. colour B. line
- C. shape D. texture

ANSWER: B

30. Weakness on a joint of furniture may be due to
- A. excessive glueing B. hammering hard
- C. missing nail D. over polishing

ANSWER: C

31. The **B** range of pencils are the

- | | | | |
|----|-----------|----|---------|
| A. | finest | B. | hardest |
| C. | smoothest | D. | softest |

ANSWER: D

SOLUTION

A 'B' range pencil indicates it has soft lead – the higher the number, the softer and darker the lead.

32. Brass is made of

- | | | | |
|----|----------------|----|-----------------|
| A. | copper and tin | B. | copper and zinc |
| C. | lead and tin | D. | lead and zinc |

ANSWER: B

SOLUTION

Brass: copper and zinc

Bronze: copper and tin

Steel: iron and carbon

Stainless Steel: iron and chromium, Nickel, Molybdenum, etc.

Duralumin: Aluminum and Copper, Manganese, Magnesium

33. The following are illnesses developed as a result of stress and poor eating habits **except**

- | | | | |
|----|---------------------|----|-----------------|
| A. | high blood pressure | B. | tooth decay |
| C. | eczema | D. | type 2 diabetes |

ANSWER: C

SOLUTION

Eczema is a common skin condition that causes a skin rash, dry skin and itchiness.

34. Which of the following stitches can be used to hold down a hem decoratively?

- | | | | |
|----|-------------|----|-------------|
| A. | Basting | B. | Hemming |
| C. | Herringbone | D. | Overcasting |

ANSWER: B

35. The advantage of buying food in bulk is that it

- | | | | |
|----|---------------------|----|--------------------|
| A. | becomes abundant | B. | becomes cheaper |
| C. | is easier to choose | D. | is easier to store |

ANSWER: B

36. A balanced meal must contain

- | | | | |
|----|---------------------------|----|-------------------------|
| A. | food from each food group | B. | little fat and oil only |
| C. | protective foods only | D. | protein foods only |

ANSWER: A

37. A *sole proprietor*

- | | | | |
|----|----------------------------|----|-------------------------------|
| A. | shares profit with friends | B. | shares profit with a partner |
| C. | takes decision alone | D. | takes decision with his staff |

ANSWER: D

SOLUTION

The sole proprietor enjoys all profits made by the business and bears all risks, including losses.

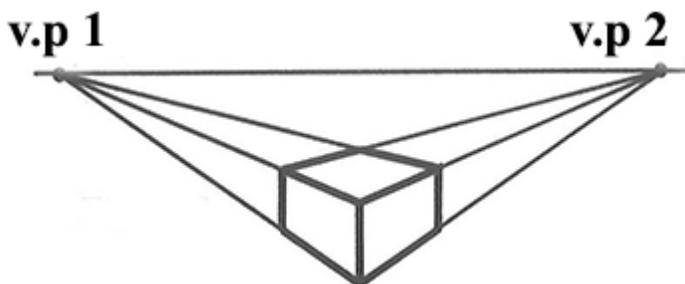
While a sole proprietor holds ultimate decision-making power, they can certainly involve their staff in decision-making processes. This can involve seeking input, advice, or even delegating authority on specific tasks or projects. However, the sole proprietor retains the final say and responsibility for all business decisions.

38. Turpentine is mixed with

- | | | | |
|----|----------------|----|---------|
| A. | emulsion paint | B. | lacquer |
| C. | oil paint | D. | thinner |

ANSWER: C

Use the figure below to answer questions 39 and 40



39. The parts **v.p 1** and **v.p 2** are called?

- | | |
|-------------------|---------------------|
| A. Viewing Points | B. Vanishing Points |
| C. Viewing Planes | D. Vanishing Planes |

ANSWER: B

40. The object is drawn in

- | | |
|--------------------------|--------------------------|
| A. oblique | B. isometric |
| C. one point perspective | D. two point perspective |

ANSWER: D

PAPER 2
ESSAY

1. (a) Araba felt unwell after eating waakye from the school canteen. The doctor confirmed it was food poisoning.
- (i) Explain the following terms:
 - (α) Food hygiene
 - (β) Food poisoning
 - (ii) State **three** possible causes of the contamination of the waakye.
- (b) Explain **each** of the following material types and give **two** examples **each**:
- (i) compliant;
 - (ii) resistant;
 - (iii) smart;
 - (iv) modern.
- (c) State the **two** types of plastic and give **two** examples **each**
- (d) You applied for an internship in a wood processing company during your long vacation. You were asked the following questions during the interview. Write down your answers.
- (i) Explain the following:
 - (α) Conversion of wood;
 - (β) Seasoning of wood.
 - (ii) State **three** reasons for seasoning wood.
 - (iii) Differentiate between solid timber and man-made boards and give **one** example **each**.

SOLUTION

- (a) (i) (α) **Food hygiene** refers to the conditions and measures needed to ensure safety of food from production to consumption.
- (β) **Food preservation** is the treatment given to food to keep it fresh and safe for a longer period.

OR

Food preservation is a method used to prevent food spoilage.

(ii) **Causes of food contamination**

1. Biological hazards (microorganisms) e.g. bacteria, fungi, yeast, mould and viruses
2. Chemical hazards e.g. pesticides, cleaning chemicals, heavy metals, naturally occurring toxins from some plants or fungi (e.g. green potatoes containing solanine)
3. Physical hazards e.g. dangerous foreign objects such as glass, metal, plastic, wood, or other objects can accidentally get into food during processing or preparation, hair or jewelry, actions of animals and human activities

- (b) (i) **Compliant Material**
Compliant materials are materials that have recognised, predictable and consistent properties.
Examples
1. Paper
 2. Card
 3. Fabric/Textile
- (ii) **Resistant Material**
Resistant materials are materials that are not pliable or flexible and cannot be easily compressed with bare hands
Examples
1. Plastic
 2. Wood
 3. Metal
 4. Ceramics
 5. Glass
- (iii) **Smart**
Smart materials (intelligent or responsive materials) are designed materials that have one or more properties that can be significantly changed in a controlled fashion by external stimuli, such as stress, moisture, electric or magnetic fields, light, temperature, pH or chemical compounds.
Examples
1. Hydrochromic Ink
 2. Thermochromic Pigment/Paint
 3. Photochromic Material/Dye
 4. SMA - Shape Memory Alloy Changes shape with heat
 5. Phosphorescent Material Glows in the dark
 6. QTC – Quantum Tunnelling Composite
 7. Polymorph
- (iv) **Modern**
Modern materials are materials developed through the invention of new or improved process to have improved properties and are used for sportswear, medical and safety wear, and fashion clothing.
Examples
1. Graphene
 2. Titanium
 3. Metal foams
 4. Nanomaterials
 5. Fibre Optics

- (c) 1. Thermoplastics plastics e.g. polyvinyl chloride (P.V.C), polyamide (nylon), acrylic (perspex), low density polyethylene (LDPE), high density polyethylene (HDPE), polystyrene
2. Thermosetting plastics e.g. phenol formaldehyde/bakelite, polyester resin, urea formaldehyde (UF), epoxy resin

- (d) (i) (α) **Conversion of wood** is the process of transforming felled trees/logs into standard sizes through sawing.

OR

Conversion of wood is the sawing of logs into standard sizes such as boards and planks.

- (β) **Seasoning of wood** is the process of removing moisture in the cells of the freshly sawn wood/timber walls.

- (ii) **Reasons for seasoning wood**

1. To reduce the weight of the timber
2. To make the timber easier to work with
3. It helps to prevent decay and insect attack
4. To reduce further shrinkage
5. To help wood surfaces take paints, finishes, varnishes and adhesives better
6. To improve upon the strength properties

- (iii) **Differences between solid timber and man-made boards**

1. Solid timber is made from harvested trees or similar natural sources, whereas man-made boards are often produced from small pieces of wood or waste wood
2. Solid timber products are heavier in weight and less flexible whereas man-made products are lighter in weight and more flexible

Examples of Solid Timber

1. Hardwoods: Oak, walnut, teak, mahogany, maple, beech, birch
2. Softwoods: Pine, fir, spruce, cedar

Examples of Man-made Board

1. **Plywood**: Thin wood veneers glued together
2. **MDF (Medium-Density Fibreboard)**: Made from fine wood dust and resin
3. **OSB (Oriented Strand Board)**: Wood strands bonded with resin
4. **Hardboard**: Compressed wood fibers
5. **Blockboard**: Softwood strips covered with plywood on either side
6. **Cross-laminated timber**: Layers of solid wood boards glued together
7. **Fibreboard**: A general term for boards made from wood fibers
8. **Chipboard (Particleboard)**: Small wood chips bonded with resin

2. (a) In a career technology class discussion, the following questions were asked. Write down your contribution.
- (i) How are metals obtained?
 - (ii) State **three** properties of metals.
- (b) Classify the following building materials under natural or man-made and state **one** source and use **each**.
Cement, bamboo sticks, lime, sand, stones, wood, bricks, reinforcement rods, clay

NATURAL	MAN-MADE	SOURCE	USE

- (c)
- (i) Sketch a labelled parts of a kitchen knife
 - (ii) State **two** uses of a kitchen knife
 - (iii) State **three** types of kitchen knife and state **one** use **each**.
- (d) State **one** method of joining and assembly at **each** of the following work places:
- (i) Sewing workshop
 - (ii) Food laboratory
 - (iii) Wood workshop
 - (iv) Building site
 - (v) Plastic/Metal workshop

SOLUTION

(a) (i) **How metals are obtained**

1. Mining and Ore Processing

Metals are typically found in ores, which are rocks and minerals that contain the desired metal compound.

These ores are mined and then crushed into smaller pieces.

Ores are often mixed with impurities so a process called concentration is used to separate the valuable metal compound from the impurities.

2. Extraction Methods

The metal is then extracted using any of the methods below:

Smelting

This method uses high temperatures to reduce the metal oxide (or sulfide) in the ore, releasing the metal. A reducing agent, like carbon, is often added to facilitate the reduction.

Electrolysis

This method uses electric current to drive a chemical reaction that separates the metal ions from their compound, resulting in the deposition of the metal. This method is commonly used for extracting reactive metals like aluminum.

3. Refining

Once the metal is extracted, it may still contain impurities. Refining processes are used to purify the metal further.

(ii) **Physical Properties of metals**

1. **Lustrous:** They appear shiny when polished.

2. **Solid at room temperature:** Most metals are solid at room temperature, with the exception of mercury

3. **Good conductors of heat and electricity:** They easily conduct heat and electricity due to their free-moving electrons

4. **Malleable:** They can be hammered or rolled into thin sheets without breaking

5. **Ductile:** They can be drawn into thin wires without breaking

6. **High melting and boiling points:** Most metals have relatively high melting and boiling points, indicating strong metallic bonds.

7. **High density:** They are generally dense materials.

8. **Strong and durable:** Metals are known for their strength and resistance to wear and tear.

Chemical Properties of metals

9. **React with acids:** Many metals react with acids to produce hydrogen gas.

10. **React with water:** Some metals react with water, especially hot water, to produce hydrogen gas and metal oxides.

11. **Corrosion:** Many metals can corrode when exposed to oxygen,

moisture, and other substances, causing them to rust or tarnish.

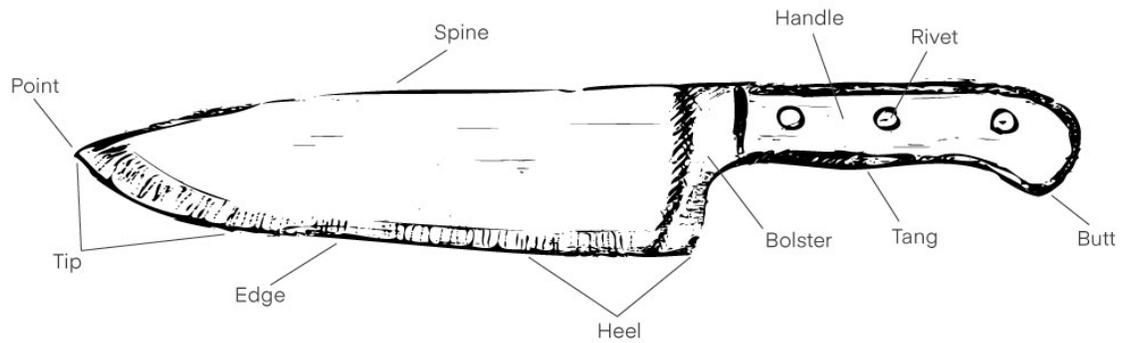
12. **Form ions:** Metals tend to lose electrons and form positive ions.

13. **Alloying:** Metals can be combined with other metals or non-metals to create alloys, which have different properties than the individual metals.

(b)

NATURAL	MAN-MADE	SOURCE	USE
Sand		1. River sand from river banks 2. Pit sand from ground 3. Sea sand from seashore	Used in mortar for moulding bricks/blocks, rendering/plastering wall, concrete mixture
Stones		Quarries	It is used in concrete mixture for foundations, floors, pillars, walls, etc.
Clay		1. Excavation in quarry 2. Digging in a Pit	
Wood		Timber	For panelling ceiling, roofing, partitions, doors and windows
Bamboo sticks		Bamboo plant	It is used as a building material for scaffolding, bridges, houses and buildings.
	Cement	Clay and limestone	1. It is used to make mortar 2. It is used for moulding blocks
	Lime	Lime stone or chalk	1. It is used for building 2. It is used in mortar for plastering
	Bricks	Clay	1. Used for building walls, floors, and pavements 2. Used for decorative purposes
	Reinforcement rods	Steel (iron and carbon) mills	Used in concrete structures to enhance tensile strength, stability and durability

(c) (i)



(ii) **Uses of a kitchen knife**

1. Chopping ingredients
2. Cutting food/ingredients
3. Dicing food
4. Mincing food
5. Peeling food
6. Separating meat from bone
7. Butchering meat
8. Opening oysters
9. Slicing food

(iii) **Chef's knife**

1. Chopping herbs
2. Dicing vegetables, fruit, and herbs
3. Cutting a variety of other ingredients like meat, poultry, and fish

Santoku knife

1. Chopping herbs
2. Dicing vegetables, fruit, and herbs
3. Mincing ingredients
4. Slicing cheese

Carving knife

For slicing through wider pieces

Bread knife

1. For slicing bread/cake
2. Slicing tomatoes

Utility knife

For slicing and chopping small to midsize vegetables and cuts of meat.

Boning knife

Used to debone cuts of meat or remove salmon skin more efficiently and reduce waste in the process.

Paring knife

For peeling, chopping, slicing, mincing, and removing seeds.

Steak knife (set)

Used at the table for cutting steak

Used at the table for cutting steak.

Kitchen shears

Used to cut herbs off their vines, chop salad greens, and open up the packing on processed foods.

Tourné knife

For creating round shapes.

Meat cleaver

Used to chop through bone.

(d) **Methods of joining and assembly**

(i) **Sewing workshop**

Stitching

(ii) **Food laboratory**

1. Boiling
2. Steaming
3. Frying
4. Roasting
5. Grilling
6. Stewing

Note: any named method of cooking is correct.

(iii) **Wood workshop**

1. Nailing
2. Bolting
3. Screwing
4. Gluing

(iv) **Building site**

Use of cement

(v) **Plastic/Metal workshop**

1. Screwing
2. Use of adhesives
3. Use of bolts and nuts
4. Soldering

3. (a) Explain *kitchen essentials* and give **three** examples.
- (b) (i) What are *finishes*?
- (ii) State **three** finishes and the solvents used to thin **each** of the stated finishes.
- (iii) Why are solvents used to thin finishes?
- (c) Define the following terms:
- (i) Entrepreneurship;
- (ii) An entrepreneur.
- (d) (i) Give **two** examples **each** for the following classification of structures by completing the table below.

CLASSIFICATION OF STRUCTURES	
SHELL	FRAME

- (ii) State **two** uses of structures.

SOLUTION

- (a) **Kitchen essentials** are indispensable/vital tools and equipment needed/necessary for meal preparation and service
- Examples of kitchen essentials**
1. Saucepan
 2. Plate
 3. Can opener
 4. Colander
 5. Cutting board
 6. Vegetable peeler
 7. Soup tureen
 8. Crockery
- (b) (i) **Finishes** are the substances applied on the surfaces of products/artefacts.
- (ii) **Solvents used to thin finishes**
1. Thinner for lacquer polish
 2. Turpentine for oil paint
 3. Water for emulsion paint
 4. Alcohol for shellac
- (iii) **Reason for using solvents to thin finishes**
Solvents make mixture flow easily.

- (c) (i) **Entrepreneurship** is the activity of setting up a business or businesses, taking on financial risks in the hope of profit.
- (ii) An **entrepreneur** is a person who sets up a business or businesses taking on financial risks in the hope of making profit.

(d) (i)

CLASSIFICATION OF STRUCTURES	
SHELL	FRAME
<ul style="list-style-type: none"> 1. Body of motor car shaped from panels 2. A bicycle helmet 3. An aeroplane's body 4. Dome roof 5. Eggs shell 6. Drink cans 7. Boats 8. Tunnels 9. Roofs 10. Coconut shell 11. Tortoise shell 12. Crab shell 	<ul style="list-style-type: none"> 1. Crane 2. Electricity pylon 3. Building 4. Skyscraper 5. A fence 6. A suspension bridge 7. Human skeletons 8. Bicycles 9. Chairs 10. Tables 11. Scaffolding

Notes

A **frame** structure is a made from different parts joined together to make them stable and strong.

A **shell** structure has a **thin curved outer layer** and is **hollow**. These structures often are used to hold or protect something. They usually have only a small number of joins or no joins at all.

(ii) **Uses of structures**

- 1. For carrying loads for which they were designed without toppling over or collapsing
- 2. For supporting the various parts of artefacts
- 3. For enhancing structural integrity and durability
- 4. For architectural design and aesthetics

4. (a) (i) Define the term *meal*.
(ii) State **three** reasons for cooking food.
(iii) List **two** moist methods of cooking.
- (b) (i) Define the term *stewing* and give **two** examples of food that can be stewed.
(ii) State **two** principles of stewing.
(iii) State **two** advantages and **two** disadvantages of stewing.
- (c) (i) Identify **two** uses of permanent stitches.
(ii) What is *crocheting*?
(iii) State the tools used for crocheting.
(iv) State **three** examples of crocheting stitches.
- (d) Copy and complete the table below by placing the foods in their appropriate methods of cooking.
Vegetables, fruits, abolo, eggs, tubani, rice, fish, pudding, yam, meat, pancake, kelewele, cassava, koose, yakeyake, beans, meat joint, kontomire, beef, groundnut, porridge

Method of cooking	Food
Boiling	
Stewing	
Frying	
Steaming	
Poaching	
Pressure cooking	
Sautéing	
Braising	

SOLUTION

(a) (i) A **meal** is a collection of prepared dishes that are eaten at a sitting.

(ii) **Reasons for cooking food**

1. To kill micro-organisms/germs
2. To improve flavor/taste
3. To make it easy to digest
4. To improve appearance
5. To make it soft/edible
6. To bring variety
7. To preserve the food

(iii) **Moist methods of cooking food**

1. Boiling
2. Steaming
3. Poaching
4. Stewing
5. Braising
6. Pressure cooking

Note: Frying is not a most method of cooking food but rather dry-heat method of cooking food because it it relies on hot fat or oil to transfer heat, not water.

(b) (i) **Stewing** is a slow, long method of cooking food in a small amount of liquid over a gentle heat.

Examples of food that can be stewed

1. Mushrooms
2. Carrots
3. Yam
4. Onions
5. Beans
6. Peppers
7. Tomatoes
8. Meat
9. Fish
10. Fruits

(ii) **Principles of stewing**

1. Stewing requires a slow, gentle cooking process. High heat will cause the liquid to evaporate too quickly, potentially burning the stew or rendering the meat tough.
2. Temperature must be well controlled
3. A tight-fitting lid is important to retain steam
4. Ingredients should be fully submerged in the liquid to ensure even cooking and tenderness.
5. Cut the meat and vegetables into reasonable pieces to soften easily and allow the juices to escape into the liquid for good taste and flavour.
6. Add vegetables such as carrots and celery that require longer cooking times initially
7. Add quicker-cooking vegetables, like green beans or peas, closer to the end of the stewing process.
8. Before stewing dried fruits, they need to be placed in cold water to rehydrate.

(iii) **Advantages of stewing**

1. The slow, moist heat of stewing breaks down connective tissues in meat, making it tender and easier to digest.
2. It allows flavors to blend/mix/combine and intensify, resulting in a richer taste.
3. Stewing is suitable for preparing large quantities of food at once, saving time and labor.
4. Some nutrients, like collagen in beef, can be beneficial when stewed.
5. Apart from vitamin C which is destroyed by prolonged cooking, other nutrients are retained in the food.

Disadvantages of stewing

1. It takes a very long time to cook compared to other methods like boiling

2. Prolonged cooking can degrade some heat-sensitive nutrients like vitamin C.
3. It requires monitoring to prevent the food from sticking or burning.
4. More fuel is required for the longer period of cooking.

- (c) (i) **Uses of permanent stitches**
1. For decoration
 2. For joining pieces of fabric together permanently
 3. For neatening
 4. They hold hems and turnings, and prevent raw edges from fraying
- (ii) **Crocheting** is a method used for fabric construction using a hook and a thread.
- (iii) **Tools used for crocheting**
1. (metal, plastic, wood or bone) hook
 2. Thread
- (iv) **Examples of crocheting stitches**
1. Chain stitch (CH)
 2. Slip stitch
 3. Single crochet (SC)
 3. Double crochet (DC)
 4. Treble crochet

(d)

Method of cooking	Food
Boiling	Rice, yam, cassava, kontomire, porridge, eggs
Stewing	Meat, fish, vegetables, fruits
Frying	Pancake, kelewele, koose, eggs
Steaming	Abolo, tubani, yakeyake, pudding
Poaching	Eggs, fruits, vegetables
Pressure cooking	Beans, groundnut, meat joint
Sautéing	Vegetables, fruits
Braising	Vegetables, fruits, beef

Notes

Boiling is a method of cooking where food is immersed in boiling water at 100 °C (or another liquid) to cook it. This method uses the heat of the boiling liquid to cook the food, effectively transferring heat from the liquid to the food.

Stewing is a moist-heat cooking method where ingredients, typically meat and vegetables, are cooked in a liquid, often a broth or wine, for a long period at a **low simmer**. This slow, gentle cooking tenderizes the food, allowing flavors to meld, and results in a dish served with the cooking liquid as a gravy or sauce.

Sautéing is a cooking technique where food is cooked quickly in a small amount of fat over high heat.

Frying is a cooking method where food is cooked in hot oil or fat, either partially or fully submerged.

Poaching in cooking is a gentle, moist-heat technique where food is cooked in a liquid at a temperature just **below boiling (100 °C)**.

Pressure cooking involves cooking food in a **sealed pot** under **pressure**, which raises the boiling point of the liquid and increases the cooking temperature. This results in significantly faster cooking times and helps preserve nutrients and flavors.

Braising is a cooking technique that combines dry and wet heat to create tender and flavorful food, especially meats and vegetables. It involves searing the food in a pan, then simmering it in a liquid (like stock, wine, or broth) in a covered pot, either on the stovetop or in the oven. It is a combination of stewing and pot roasting.

Steaming is a moist-heat cooking method where food is cooked by direct contact with steam, generated from boiling water. This method preserves nutrients and flavor, and doesn't require added fats, making it a healthy cooking option.

5. (a) (i) What is *body odour*?
- (ii) State **three** causes of bad body odour.
- (iii) State **two** materials used to prevent bad body odour.
- (iv) State **five** places body odour is likely to occur.
- (v) State **two** ways of preventing bad body odour.
- (b) (i) What is *food hygiene*?
- (ii) State any **four** ways by which a caterer can maintain good health and clean environment.
- (iii) State **two** reasons why it is necessary for a caterer to stay clean and healthy.
- (iv) State **four** hygiene rules to observe when cooking.
- (v) Under what **five** circumstances should a cook wash his/her hands?
- (vi) Describe how to wash the hands in a hygienic manner.
- (vii) List **three** clothing items for the cook.
- (c) (i) What is meant by *sketching*?
- (ii) State **three** techniques of sketching objects in two-dimensional (2-D), plane figures.
- (iii) Explain the **three** techniques of sketching objects in three dimensional (3-D), solid figures.
- (d) Adjoa was working in the kitchen when she was cut by a knife.
- (i) What is meant by *First Aid*?
- (ii) State **three** items that can be found in a First Aid box.
- (iii) Describe how you would administer first aid to Adjoa's cut.

SOLUTION

- (a) (i) **Body odour** is a physiological process where bacteria on the skin react with sweat, producing unpleasant smells.
- (ii) **Causes of bad body odour**
1. Exercise
 2. Not bathing well
 3. Warm or hot weather
 4. Changes in hormones
 5. Being overweight
 6. Having certain health conditions such as diabetes, liver or kidney disease
 7. Taking certain types of medicines such as antidepressants
 8. Excessive sweating
 9. Smelly feet
 10. Some fatty foods, oils, garlicks, onions, etc. can alter body odor by changing the chemical composition of sweat
- (iii) **Materials used to prevent bad body odour**
1. Lime/lemon
 2. Deodorant
 3. Anti-bacterial soap
- (iv) **Places body odour is likely to occur**
1. Feet
 2. Mouth
 3. Genitals
 4. Armpits
 5. Groin
 6. Mouth
 7. Scalp
 8. Pubic hair and othr hair
 9. Belly button
 10. Anus
 11. Behind the ears
- (v) **Ways of preventing bad body odour**
1. Taking a bath/showering everyday
 2. Washing and wearing clean clothes regularly
 3. Using lime/lemon for the armpit
 4. Using antiperspirants and deodorants to reduce sweat and mask odours
 5. Reducing the consumption of foods like garlic, onions, and spicy dishes which can intensify body odour
 6. Shaving armpit regularly
 7. Using foot powders and changing socks regularly to keep feet dry and prevent odour

- (b) (i) **Food hygiene** is the handling, preparing and storing food or drink in a way that best reduces the risk of consumers becoming sick from the food-borne disease.
- (ii) **Ways by which a caterer can maintain good health and clean environment**
1. Covering hair with hairnet or piece of cloth when cooking
 2. Wearing clean/neat clothes
 3. Washing hands before handling food
 4. washing hands with soap under running water after visiting the toilet
 5. Keeping the kitchen and its surroundings clean/neat
 6. Proper disposal of kitchen refuse and waste
 7. Keeping utensils clean
 8. Washing foodstuff thoroughly before cooking
 9. Washing cloths after use
 10. Keeping short and clean finger nails to prevent germs / food particles hiding in them
 11. Regularly washing and drying used items to keep them free from germ
- (iii) **Reasons why it is necessary for a caterer to stay clean and healthy**
1. To ensure that his/her food and services remain safe for consumption
 2. To boost his/her self confidence
 3. To enable him/her work effectively, leading to growth and profitability of business
 4. To make his/her food and services attractive
 5. To gain the respect of his/her customers and others
 6. To prevent food contamination
 7. To prevent accidents
- (iv) **Hygiene rules to observe when cooking**
1. Keep pets and insects out of the kitchen
 2. Wear clean clothes when cooking
 3. Cover open sores/cuts before cooking
 4. Use clean dish cloths/towels when cooking
 5. Do not use dish cloth to wipe hands, face and spills
 6. Keep dirty dishes and pots away from preparation area
 7. Store food appropriately both before and after cooking.
 8. Keep hair clean and cover with a cap
 9. Cut/trim finger nails short
 10. No wearing of jewellery at work
 11. Sneeze and cough into a handkerchief
 12. Wash hands regularly, before and after handling food
- (v) **Circumstances under which a cook should wash his/her hands**
- Wash hands before:

1. starting to prepare food
2. touching unpacked foods and clean equipment
3. serving the foods and touching the clean utensils and equipment
4. changing tasks from raw meat to ready-to-consume foods in order to prevent cross-contamination during food preparation
5. wearing gloves
6. entering where foods are kept and stored

Wash hands after:

7. taking breaks
8. eating
9. drinking
10. smoking
11. coughing, sneezing or blowing the nose/using handkerchief
12. playing with pets/handling animals
13. scratching
14. handling refuse/waste materials
15. handling cleaning chemicals
16. touching hair, unclean equipment and tools
17. handling cash
18. taking off gloves
19. using the toilet
20. washing dishes
21. using the restroom
22. entering where foods are kept and stored
23. handling raw and cooked foods

(vi) **How to wash the hands in a hygienic manner**

1. Clear off any excess food or dirt by rinsing under water
2. Rub your hands and wrists with soap
3. Lather the soap for 20 seconds
4. Thoroughly wash the entire hands and forearms
5. Rinse thoroughly under warm water
6. Dry hands with paper towel/a hot air dryer
7. Apply an alcohol-based hand sanitizer
8. When using a tap, turn off the tap using your elbows or a paper towel

(vii) **Clothing items for the cook**

1. Toque
2. Coat
3. Apron
4. Pants
5. Shoes
6. Disposable Hairnet

7. Shoe Cover

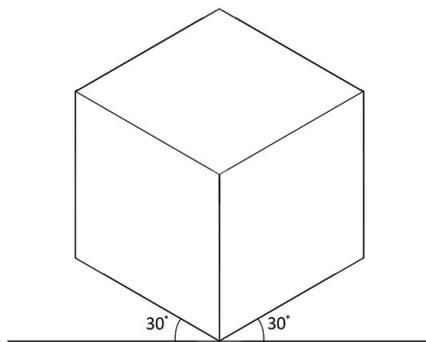
8. Beard Cover

- (c) (i) **Sketching** is a quick way of putting ideas down using freehand with a pencil or any other marker.
- (ii) **Techniques of sketching objects in two-dimensional (2-D), plane figures**
1. Square
 2. Triangle
 3. Circle
 4. Rectangle
 5. Oval/Ellipse
 6. Rhombus
 7. Octagon
 8. Pentagon
 9. Hexagon
 10. Heptagon
 11. Trapezium

(iii) **Techniques of sketching objects in three dimensional (3-D), solid figures**

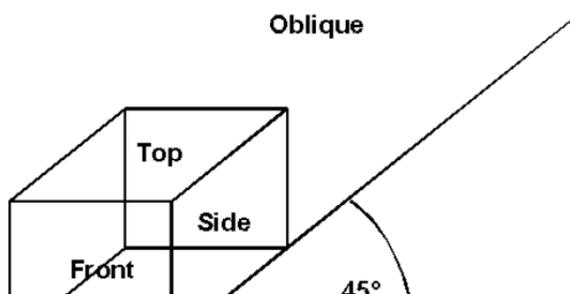
1. **Isometric drawing**

This is a way of presenting pictorial drawing where two axes indicating the front and end faces are drawn, inclined at 30° each way and the angle in between the axes is 120° .



2. **Oblique drawing**

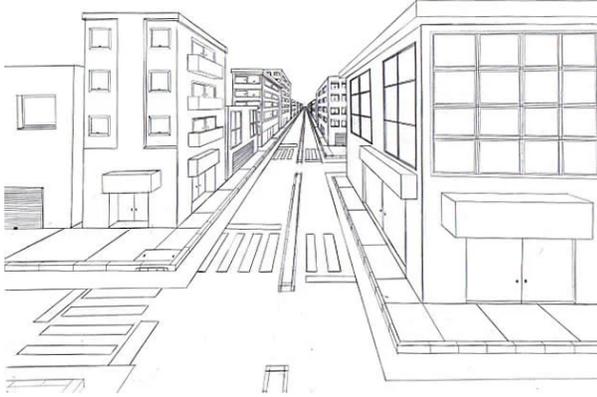
This is a pictorial representation in which only one side of the axes is inclined at an angle of 45° and the angle in between the axis is 135° . It is drawn using 45° set square.





3. Perspective drawing

This is a technique used to create the illusion of depth and spatial relationships on a two-dimensional surface, like a piece of paper.



(d) (i) A **First Aid** is a help given to an injured/sick person till full medical treatment is available.

(ii) **Items that can be found in a First Aid box**

1. Plaster
2. Gauze
3. Scissors
4. Methylated spirit
5. Absorbent compress dressings
6. Bandages
7. Adhesive cloth tape
8. Antibiotic ointment
9. Antiseptic wipe packets
10. Aspirin/paracetamol
11. Foil/emergency blanket
12. Breathing barrier
9. Instant cold compress
10. Pair of nonlatex gloves
11. Hydrocortisone ointment packets
12. Oral thermometer (non-mercury/nonglass)
13. Gloves
14. Tweezers
15. Emergency First Aid instructions/booklet
16. Pain reliever
17. Allergy medication
18. Hydrogen peroxide
19. Rubbing alcohol
20. Cotton applicators
21. Face shields/pocket masks

(iii) **First aid for cuts**

1. Wash your hands
2. Apply direct pressure to the wound with a clean cloth, gauze pad, or bandage to stop the bleeding.
3. If the cloth soaks through, add another layer on top without removing the first.
4. If possible, raise the injured limb to help slow the bleeding.
5. Continue applying pressure for at least 5-10 minutes.
6. If the bleeding doesn't stop, seek medical attention.
7. If the bleeding stops, wash your hands thoroughly with soap and water
8. Rinse the wound under cool, running tap water to remove debris and bacteria.
9. Gently clean the surrounding skin with soap and water, but avoid

getting soap in the wound.

10. Remove any visible dirt or debris with clean tweezers.

11. To prevent infection, apply a topical antiseptic.

12. Cover the wound with a sterile gauze pad with dressing and secure with adhesive tapes if the cut is not a minor scrape/scratch

13. Change the dressing daily or more often if it gets wet or dirty.

6. (a) (i) State **five** causes of deforestation.
(ii) State **three** effects of deforestation.
(iii) State the preventative measures for deforestation.
- (b) (i) State **five** causes of desertification.
(ii) State **three** effects of desertification.
(iii) State the preventative measures for desertification.
- (c) (i) Define the term *waste management*.
(ii) State **three** proper ways of disposing off household or industrial waste.
(iii) State **four** effects of uncontrolled waste disposal.
- (d) Akos is preparing meals for a party. State **three** ways she could make the meals interesting.

SOLUTION

(a) **Note**

Deforestation is deliberate removal of natural forest by human action/the gradual loss of natural forest to less than 10% of forest.

(i) **Causes of deforestation**

1. Mining activities
2. Bush fires
3. Agriculture (clearing of forest for agricultural purposes)
4. Logging (cutting down of trees for supplies, firewood and charcoal)
5. New construction/road building
6. Urbanization (clearing of forest to build houses to accommodate people who move to the cities)
7. Desertification/Land unfit to grow trees
8. Forest fires
9. Overpopulation (clearing of forest to build houses to accommodate more people)
10. Improper methods of farming such as shifting cultivation

(ii) **Effects of deforestation**

Effects of deforestation on soil fertility

1. Deforestation may lead to erosion of topsoil and reduce soil fertility.
2. Deforestation could lead to destruction of micro and macro organisms that breakdown organic matter to enrich the soil.
3. Deforestation may lead to soil compaction and reduce soil aeration to lower soil productivity.

Effects of deforestation on habitats of animals

4. Deforestation may lead to the destruction of the habitats of various animals
5. Deforestation may expose animals to harsh environmental conditions when habitats are destroyed.
6. Deforestation may lead to removal of food and water sources when habitats are destroyed.
7. Deforestation may lead to loss of social organization when habitats are removed or destroyed.

Effects of deforestation on National Economy

8. Deforestation may lead to unemployment
9. Deforestation may lead to poverty.
10. Deforestation may lead to loss of productivity due to poor health as a result of lack of medicines.

Effects of deforestation on the Environment

11. Loss of habitats of various organisms

Because of the removal of the vegetation, animals and plants that live on trees and those living inside trees buttresses lose their living places.

Example, some plants like ferns. Some animals live in burrow just under trees in order to have low temperatures. As soon as the tree or the plant is removed the habitats are destroyed.

12. Loss of water sheds

All the plants protecting rivers which are grown at the banks are destroyed. This causes drying up of the rivers through evaporation

13. Erosion, siltation / accretion

Because of the removal of vegetation, rains get into direct contact with the soil causing erosion. The eroded material are sent unto water banks

14. Loss of biodiversity of some species / extinction

Because the vegetation cover is removed, some plants and animals are very difficult to come by because their living places are destroyed

15. Flooding

Because there are no vegetation, most of the rain water could not be absorbed into the soil but are ran or directed into rivers thereby causing flooding

16. Climatic variability / change

The presence of trees and other vegetation give a constant humid environment. Once the vegetation is removed the place experiencesn changes in temperature as well as alternating sunny and cloudy weather

17. Loss of soil fertility

In the absence of the vegetation cover, soil nutrients are washed from the soil by erosion.

18. Drying up of water bodies.

19. Disastrous changes in rainfall pattern.

20. Destruction of community buildings by strong winds.

(iii) **Preventative measures for deforestation**

1. Enforcement of environmental laws on mining

2. Public education

3. Practice of re-afforestation/planting more trees

4. Creation of forest and game reserves

5. Provision of alternative fuels such as Liquefied Petroleum Gas (LPG) to avoid over-dependance on fire wood and charcoal as fuels

6. Control of bush fire

7. Adoption of proper farming methods such as mixed farming, bush fallowing, agro-forestry, etc. and abolishing of shifting cultivation as a method of farming

8. Control of population growth to reduce the destruction of forest for human settlements

9. Reduction of consumption of paper through paperless system or digitization to reduce the cutting of trees for paper production

(b) **Note**

Desertification is the process by which fertile land becomes desert/bare typically as a result of drought, deforestation or inappropriate agriculture practices.

(i) **Causes of desertification**

1. Deforestation/felling of trees
2. Over-cultivation/over-cropping leading to soil infertility
3. Poor irrigation methods
4. Overgrazing
5. Indiscriminate bush burning
6. Wrong application of agro-chemicals such as weedicides, pesticides, fertilizers which makes the soil acidic leading to soil infertility
7. Climate change
8. Urbanization/infrastructural development
9. Excessive quarrying and sand winning
10. Natural disasters/Drought
11. Soil pollution
12. Mining activities

(ii) **Effects of desertification**

1. Biodiversity loss
2. Climate change
3. Flooding
4. Soil erosion
5. Poverty
6. Water scarcity
7. Displacement and migration
8. Decrease in crop yields/Hunger
9. Loss of productive land

(iii) **Preventative measures for desertification**

1. Enforcement of environmental laws on mining
2. Public education
3. Practice of re-afforestation/planting more trees
4. Creation of forest and game reserves
5. Provision of alternative fuels such as Liquefied Petroleum Gas (LPG) to avoid over-dependance on fire wood and charcoal as fuels
6. Control of bush fire
7. Proper application of agro-chemicals
8. Control of population growth to reduce the destruction of forest for human settlements
9. Reduction of consumption of paper through paperless system or digitization to reduce the cutting of trees for paper production

- (c) (i) **Waste management** is the proper way of disposing off waste substance (unused or discarded resources/substances) which are created through human activities without creating an environmental nuisance/problem. This includes the collection, transport, treatment and disposal of waste, together with regulation and monitoring of the waste management process.
- (ii) **Proper ways of disposing off household or industrial waste**
1. **Landfills**
This is the disposal of waste material by burying it, especially as a method of filling in and reclaiming excavated pits.
 2. **Combustion/incineration/thermal treatment**
Combustion, also known as incineration or thermal treatment, is a waste disposal method that involves controlled burning of waste materials at high temperatures. This process reduces waste volume and mass, and can also destroy pathogens and hazardous materials.
Incinerators are designed to burn waste under controlled conditions, ensuring that the process is efficient and safe.
 3. **Waste-to-Energy**
This is the conversion of non-recyclable waste into electricity or heat.
 4. **Biogas Generation**
This is the use anaerobic digestion to break down organic waste and produce biogas, which can be used for energy.
 5. **Waste Compaction**
This is the use of equipment to reduce the volume of waste for more efficient transportation and storage.
 6. **Composting**
This is the decomposition of organic waste such as food scraps and used as compost which is applied to gardens and potted plants to enrich the soil and improve plant growth
 7. **Donating or repurpose and reuse**
This is finding new uses for items that would otherwise be discarded, such as repurposing glass jars for storage or using old clothes for rags or donating to those who might use the items.
 8. **Recycling**
This is the separation of recyclables like paper, plastic, glass, and metal from regular trash and sorted which are recycled.
- (iii) **Effects of uncontrolled waste disposal**
1. Increase in air pollution
 2. Increase in water pollution
 3. Increase in land degradation
 4. Flooding

5. Spread of diseases
6. Destruction of aquatic life
7. Breeding of mosquitoes
8. Destruction of the vegetation
9. Development of swamps
10. Dirty and unhygienic environment

(d) **Ways of making meals interesting**

1. Garnishing savoury dishes/decorating sweet dishes.
2. Serving variety of dishes/creating new dishes out of left over foods
3. Improving flavour/aroma/adding spices and flavouring.
4. Adding colour/adding colourful vegetables and fruits.
5. Improving the texture/serving foods with different textures.
6. Using different methods of cooking.
7. By moulding in different sizes and shapes.
8. By serving meals at the right time.
9. By serving food at the right temperature.
10. By making table laying more interesting e.g. using crockery of different shapes, blend colours of table linen and crockery, arranging items and dishes e.g. fish, groundnuts with different coatings before frying/glazing dishes like pastry, bread dishes before baking.