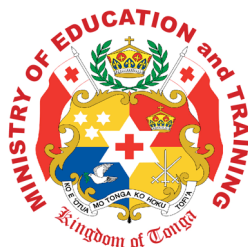


MARKER CODE				



STUDENT ENROLMENT NUMBER (SEN)									

TONGA FORM SIX CERTIFICATE

2021

DESIGN TECHNOLOGY

QUESTION AND ANSWER BOOKLET

Time allowed: 2 $\frac{1}{2}$ Hours

INSTRUCTIONS:

- Write your **Student Enrolment Number (SEN)** on the top right-hand corner of this page.
- This examination has **FIVE MAJOR AREAS**. Each **AREA** is out of 70 weighted scores.
- Answer **ONLY ONE MAJOR AREA**. **DO NOT** answer ALL THE MAJOR AREAS.

MAJOR AREA		STRANDS	TOTAL SKILL LEVEL
	Please ✓ choice	OPTIONAL QUESTIONS Choose ONE (Major 1 – Major 5)	
1		WOOD TECHNOLOGY	70
2		METAL TECHNOLOGY	
3		FOOD TECHNOLOGY	
4		TEXTILES AND GARMENT CONSTRUCTION	
5		TECHNICAL GRAPHICS	
TOTAL			70

- Answer **ALL QUESTIONS** that are required. Write your answers in the spaces provided in this booklet.
- Use a **BLUE** or **BLACK** ball point pen only for writing. Use a sharp and clear pencil for drawing.
- If you need more space for answers, ask the supervisor for extra paper. Write your **Student Enrolment Number (SEN)** on each additional sheet, number the questions clearly and insert them in the appropriate places in this booklet.
- Check that this booklet contains pages **2 - 71** in the correct order and that none of the pages is blank.

YOU MUST HAND IN THIS BOOKLET TO THE SUPERVISOR BEFORE YOU LEAVE THE EXAMINATION ROOM.

MAJOR AREA 1:**WOOD TECHNOLOGY****A. Multiple Choice:**

Circle the letter of the **BEST** answer.

1. The correct tools that can be used for the testing of timber flatness is;

- A. Measuring Tape
- B. Try Square
- C. Straight edge
- D. Sliding Bevel

Skill level 1	
1	
0	
NR	

2. Which of the following hand tools is a cutting tool?

- A. Claw Hammer
- B. Screwdriver
- C. Try Square
- D. Wood Chisel

Skill level 1	
1	
0	
NR	

3. The first thing that encourages you to start designing during the designing stage is by:

- A. Identifying the problem
- B. Developing ideas
- C. Evaluate and document
- D. Making a project

Skill level 1	
1	
0	
NR	

4. Which of the following tools that you can use for finishing of a table top?

- A. Chisel
- B. Smoothing plane
- C. Claw hammer
- D. Crosscut saw

Skill level 1	
1	
0	
NR	

5. The best wood fastener that can withstand a cyclone is;

- A. Wood Screw
- B. Nail
- C. PVA Glue
- D. Dowell Joint

Skill level 1	
1	
0	
NR	

6. A detailed description of what the client needs as the necessary features of the product is;

- A. Document
- B. Instruction
- C. Summary
- D. Design brief

Skill level 1	
1	
0	
NR	

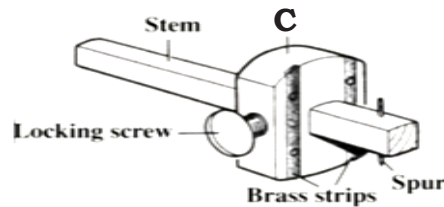
7. What are the main stages in the designing process?

- A. Problem, specification, task
- B. Evaluating, building, decision making
- C. Designing making and evaluating
- D. Investigation, process and developing

Skill level 1	
1	
0	
NR	

8. What is the name of the part with label **C** of the hand tool given below?

- A. Stock
- B. Spur
- C. Thumbscrew
- D. Stem



Skill level 1	
1	
0	
NR	

9. Softwood trees can be identified by;

- A. Seeds that are closed fruits.
- B. Long green needle shaped leaves
- C. Broad leaves
- D. Seeds encased in cones

Skill level 1	
1	
0	
NR	

10. What is the easy method of seasoning timber, which can be carried out at home?

- A. Kiln drying
- B. Pressure seasoning
- C. Air drying
- D. Machinery seasoning

Skill level 1	
1	
0	
NR	

Skill level 1	
1	
0	
NR	

- b. Briefly explain the processes of manufacturing of Plywood.

[illegible]

Skill level 3	
3	
2	
1	
0	
NR	

- c. Identify the process for the manufacturing of wood turning product.

Skill level 1	
1	
0	
NR	

- d. Briefly explain the processes for the manufacturing of Laminate.

[illegible]

Skill level 3	
3	
2	
1	
0	
NR	

3. Characteristics and Properties of Timber

- a. How are you going to identify that a Toa tree is a Hardwood?

Skill level 1	
1	
0	
NR	

b. Timber Conversion.

Name and briefly explain **ONE** (1) method of Timber Conversion.

Name: _____

Explanation: _____

Skill level 2	
2	
1	
0	
NR	

c. Seasoning of Timber.

i) Name and briefly explain **ONE** (1) method of Seasoning of timber:

Name: _____

Explanation: _____

Skill level 3	
3	
2	
1	
0	
NR	

ii) Describe **ONE** (1) problem that occurs during the seasoning of timber.

Skill level 2	
2	
1	
0	
NR	

d. Moisture Content of Timber

i) What happens to the timber if the % of moisture content is low?

Skill level 1	
1	
0	
NR	

ii) Briefly explain the moisture content of timber.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

e. Preserving

Discuss the importance of preserving timber.

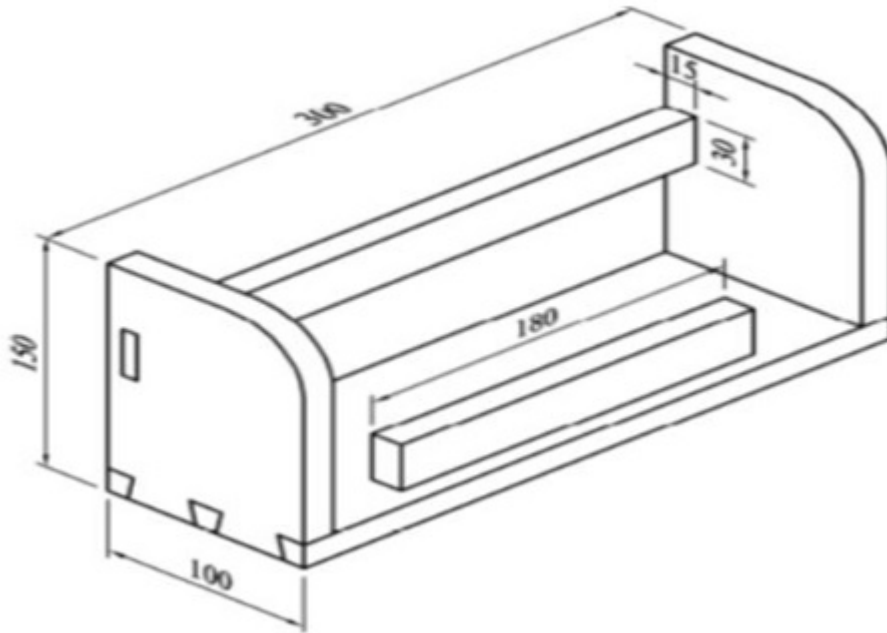
[illegible]

Skill level 4	
4	
3	
2	
1	
0	
NR	

4. Project

Study the kitchen shelf below (made of wood) and answer the following questions

All dimension in mm.



- a. Complete the cutting list below for the shelf

Parts	Quantity	Length	Width	Thickness
Base	1		100	15
Side		150		15
Back rail	1	300		
Front rail	1		30	15

Skill level 3	
3	
2	
1	
0	
NR	

- b. What is the type of wood that is good for the making of the kitchen shelf?

Skill level 1	
1	
0	
NR	

c. Costing and Quantifying Materials

i) Calculate the cost of timber for the kitchen shelf, by filling in the table below.

- Rail \$1.00 for 10mm
- Base \$2.00 for 10mm
- Side \$2.00 for 10mm

Parts	Cost for 10mm	Total
Back rail	\$1.00	
Front rail	\$1.00	
Base	\$2.00	
side	\$2.00	
TOTAL		

Skill level 3	
3	
2	
1	
0	
NR	

ii) Describe the type of wood joint that is used for the making of the kitchen shelf to be perfect.

Skill level 2	
2	
1	
0	
NR	

iii) List the hand tools that is needed for the making of the joint.

Skill level 2	
2	
1	
0	
NR	

- iv) Explain why this type of joint is used to join the back rail and the side.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

5. Tools and Materials

a. Tools

- i) Explain why you must maintain well and properly store the tools that you have used.

[illegible]

Skill level 3	
3	
2	
1	
0	
NR	

- iv) There are problems concerning with the cutting tools that you have used for the construction of your project.

Discuss how you took care and handled the cutting tools correctly and safely.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 4	
4	
3	
2	
1	
0	
NR	

b. Preparing of Materials

- i) Explain in order, the steps of how to prepare a piece of timber before using it for project making.

[illegible]

Skill level 3	
3	
2	
1	
0	
NR	

MAJOR AREA 2: METAL TECHNOLOGY

A. Multiple Choice.

Circle the letter of the **BEST** answer.

1. Identify from the following an example of ferrous metal.

- A. Aluminium
- B. Brass
- C. Steel
- D. Copper

Skill level 1	
1	
0	
NR	

2. Identify from the following an example of non-ferrous metal.

- A. Cast iron
- B. Brass
- C. steel
- D. Iron

Skill level 1	
1	
0	
NR	

3. Name the part of the Oxy-Acetylene plant where oxygen and acetylene are mixed.

- A. Welding tip
- B. Regulator
- C. Welding house
- D. Blow pipe

Skill level 1	
1	
0	
NR	

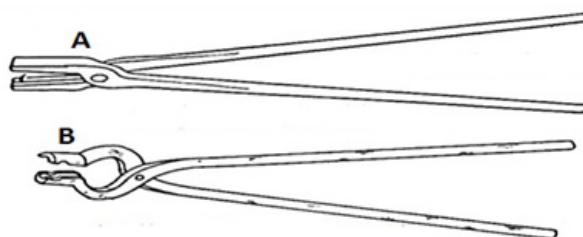
4. State how the metals are to be connected to each other in spot welding.

- A. Electric contact
- B. Mechanical field
- C. Magnetic pressure
- D. Direct contact

Skill level 1	
1	
0	
NR	

5. State the correct name for the forging tools **A** and **B** given below.

- A. Anvil
- B. Gauge
- C. Tongs
- D. Swages



Skill level 1	
1	
0	
NR	

6. Identify the forging process that increases the length of forging metal and reduces its diameter.

- A. Drawing
- B. Upsetting
- C. Wages
- D. Forging

Skill level 1	
1	
0	
NR	

7. Identify the properties of stainless steel.

- A. Corrosive attack
- B. Machinable
- C. Not ductile
- D. Can't weld

Skill level 1	
1	
0	
NR	

8. Which stage of the design process where “**think about the outcome**” takes place?

- A. Investigating
- B. Designing
- C. Making
- D. Evaluating

Skill level 1	
1	
0	
NR	

9. Identify what stage of the design process where “**evaluate and document**” took place.

- A. Investigating
- B. Devising
- C. Making
- D. Evaluating

Skill level 1	
1	
0	
NR	

10. Name **ONE** (1) molecular structure of metal.

- A. Circle-body
- B. Simple cubic
- C. Square packed
- D. Triangle-cubic

Skill level 1	
1	
0	
NR	

B. Short and Long Answer Questions

Answer all the questions given.

1. Design

- a. Define the term **investigating**.

Skill level 1	
1	
0	
NR	

- b. Briefly describe the stage of **evaluating** in the design process.

Skill level 2	
2	
1	
0	
NR	

- c. Explain what is involved in the '**Making stage**' of the design process of your project, that you used in your Internal Assessment (**IA**) this year.

Skill level 3	
3	
2	
1	
0	
NR	

2. Workshop Safety

- a. Identify **ONE** (1) workshop safety.

Skill level 1	
1	
0	
NR	

- b. Identify **ONE** (1) personal safety.

Skill level 1	
1	
0	
NR	

- c. Identify **ONE** (1) correct way of storing tools and equipment

Skill level 1	
1	
0	
NR	

3. Metal Classification

- a. Describe Non-Ferrous metals.

Skill level 2	
2	
1	
0	
NR	

- b. What is the difference between Aluminium and Stainless steel?

Skill level 3	
3	
2	
1	
0	
NR	

c. Evaluate the process applied in producing steel.

[illegible]

Skill level 4	
4	
3	
2	
1	
0	
NR	

4. Characteristics of Metal

a. Identify **ONE (1)** characteristics of Aluminium

Skill level 1	
1	
0	
NR	

b. List **TWO (2)** mechanical properties of metal.

Skill level 2	
2	
1	
0	
NR	

c. Classify the properties of metal.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

d. Evaluate the properties of stainless steel where most cooking utensils are made out of.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 4	
4	
3	
2	
1	
0	
NR	

5. Head, Forging Process and Metal Finishing Process

- a. Briefly describe why the Hacksaw blade hardens, in the process of heat treatment.

Skill level 2	
2	
1	
0	
NR	

- b. Briefly describe why we do tempering in the process of heat treatment of a chisel.

Skill level 2	
2	
1	
0	
NR	

- c. Explain the uses of appropriate forging process for upsetting.

[illegible]

Skill level 3	
3	
2	
1	
0	
NR	

- d. Explain the use of appropriate forging process for bending.

6. Use of Tools, Equipment and Welding.

- [illegible]

b. Complete the table by giving **THREE** (3) examples for cutting tools.

Skill level 3	
3	
2	
1	
0	
NR	

- c. Describe the uses of folding machine.

Skill level 2	
2	
1	
0	
NR	

- d. Explain the use of Lathe to carry out the operation of Parting-off.

[illegible]

Skill level 3	
3	
2	
1	
0	
NR	

- e. Explain how to use adjustable wrenches.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

- f. Name an appropriate welding process when using arc welder.

Skill level 1	
1	
0	
NR	

- g. Explain the appropriate welding processes when using Oxy-Acetylene.

Skill level 3	
3	
2	
1	
0	
NR	

7. Metal Finishing Process.

Evaluate **ONE** (1) type of metal finishing process. *(Name the type given.)*

Skill level 4	
4	
3	
2	
1	
0	
NR	

MAJOR AREA 3:**FOOD TECHNOLOGY****A. Multiple Choice:**

Circle the letter of the **BEST** answer.

1. The nutrient “FAT” is essential for health because _____

- A. It builds up body cells and new tissues.
- B. It transports fat-soluble vitamins.
- C. In it’s simple form, it provides calcium.
- D. It repairs broken body cells.

Skill level 1	
1	
0	
NR	

2. Which part of the digestive system contain the villi?

- A. Esophagus
- B. Small intestine
- C. Stomach
- D. Large intestine

Skill level 1	
1	
0	
NR	

3. Which of the given nutritional disease has high blood sugar levels in the body over a prolonged period?

- A. Diabetes
- B. Obesity
- C. Hypertension
- D. Anaemia

Skill level 1	
1	
0	
NR	

4. Which of the following occurs when raw meat, poultry, seafood and eggs come in contact with ready-to-eat foods like bread and vegetables?

- A. Cross contamination
- B. Natural decaying
- C. Food spoilage
- D. Food deterioration

Skill level 1	
1	
0	
NR	

5. Which of these nutrients best maintains intestinal health?

- A. Starch
- B. Vitamin
- C. Fibre
- D. Fat

Skill level 1	
1	
0	
NR	

6. Which one of the following makes sure food is handled and prepared safely?

- A. Four servings of cooked meat are left on the bench to cool before serving together
- B. Hot food needs to be kept and served hot (60°C) to inhibit the growth of bacteria.
- C. A wet mitt is used to remove a hot baking tray from the oven.
- D. Blunt knives can be used to prevent one from cutting oneself.

Skill level 1	
1	
0	
NR	

7. Which **ONE** (1) of the following stages should be the first stage?

- A. Solution Descriptions
- B. Problem Analysis
- C. Problem Identification
- D. Material Analysis

Skill level 1	
1	
0	
NR	

8. Identify the stage of the design process where the designer “**Explore issues about the problem**”

- A. Designing
- B. Evaluating
- C. Investigating
- D. Making

Skill level 1	
1	
0	
NR	

9. Identify the stage of the design process where you ask the question of “**How well does it work?**”.

- A. Making
- B. Designing
- C. Investigating
- D. Evaluating

Skill level 1	
1	
0	
NR	

10. One of the following means “**Sketching the prototype and actually making it**” is a response to the problem.

- A. Investigating
- B. Designing
- C. Producing
- D. Evaluating

Skill level 1	
1	
0	
NR	

B. Short Answer Questions:

Answer all the questions given.

1. Define the following terms.

a. micro nutrients

Skill level 1	
1	
0	
NR	

b. design brief

Skill level 1	
1	
0	
NR	

c. digestion

Skill level 1	
1	
0	
NR	

2. Identify **TWO** (2) nutritional requirements of an overweight female passive worker in her fifties who has borderline high blood pressure and normal blood sugar level.

Skill level 1	
1	
0	
NR	

3. Susan left four food items in a plastic bag in a warm container for five days. After five days, she observed the following results:

	Food Item	Observation
1	Bread	Covered with black, fuzzy stuff
2	Banana	Banana turned slimy, black and soft.
3	Hamburger	Turned brown with green spots
4	Cheese	Has white and green areas

Based on the above food handling, circle which of the following statements below **BEST** describes the observations made.

Statements.

- A. Bread is more likely to rot than meat or cheese.
- B. Bread is better for you to eat than cheese.
- C. Different micro-organisms grow on different foods.
- D. A hamburger is less safe to eat than other foods because it turns brown.

Skill level 2	
2	
1	
0	
NR	

4. Clearly describe how “Personal hygiene” is applied in ONLY **ONE** (1) of the situations given below.

- i. Before you leave home.
- ii. Every hour of the day.
- iii. Once a year - After a hard day’s work.
- iv. When you wake up in the morning.

Skill level 2	
2	
1	
0	
NR	

5. Meal planning is an ongoing responsibility for the mother. She must know her family very well in order to plan and create/make appropriate and healthy meals for her family.

- a. Identify an important factor that will affect her planning.

Skill level 1	
1	
0	
NR	

- b. Describe the factor (you identified in **a.**) and show its effect on meal planning. Give an example.

Skill level 2	
2	
1	
0	
NR	

6. a. Define the term **'Food Contamination'**.

Skill level 1	
1	
0	
NR	

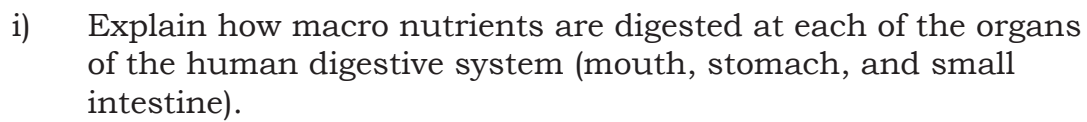
- b. Explain the techniques used to prevent cross contamination.

Hint: (State the techniques, give reasons and examples)

Skill level 3	
3	
2	
1	
0	
NR	

7. Nutrients are classed into Macro-Nutrients or Micro-Nutrients. List the **types** of micro-nutrients.

Skill level 2	
2	
1	
0	
NR	

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

Skill level 3	
3	
2	
1	
0	
NR	

iii) Discuss the effects of excess macro nutrients on the human body.

(Hint: 1. State the types of macro nutrients.
2. Describe what happens when each type is in excess.
3. Link to issues in the human body.
4. Give examples.)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 4	
4	
3	
2	
1	
0	
NR	

b. Explain factors that causes food spoilage.

This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal grey lines across the entire width of the page, typical of notebook or primary writing paper. There are no margins, text, or other markings present.

Skill level 3	
3	
2	
1	
0	
NR	

C. Extended Response Questions:

Answer all the questions given.

1. Why should food not be refrozen once it has thawed?

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

2. Read the following **events** and answer the questions that follow.

Events:

- (1) You enter the kitchen
- (2) First you make some sandwiches
- (3) Then you take your coffee break
- (4) Then you put on some lamb chops

- a. Describe the techniques for safe food handling and the preparations involved involve in only **ONE** (1) of either **events 2.** or **3.**

Skill level 2	
2	
1	
0	
NR	

- b. Explain the standards required in the safe handling and preparation of the lamb chops on grill in **event 4**.

(Hint: State the standards, give reason(s) for the standards)

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

3. Explain the need for regulations in the date markings of packaged food.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

The image contains two diagrams illustrating the Farm to Fork approach.

Left Diagram: Farm to Fork Cycle

A circular diagram with four segments, each representing a stage in the food system:

- Sustainable Food Production** (Pink segment, top right): Includes an icon of a farm with a barn and trees.
- Sustainable Food Processing & Distribution** (Blue segment, bottom right): Includes an icon of three bottles on a tray.
- Sustainable food consumption** (Green segment, bottom left): Includes an icon of a fork and a leaf.
- Food Loss & Waste Prevention** (Orange segment, top left): Includes an icon of a trash bin with a recycling symbol.

The center of the circle is labeled **Farm to Fork**.

Right Diagram: Farm to Fork System

A complex flow chart illustrating the interactions within the food system:

- ENVIRONMENTS** (Outer ring): Includes Economic, Bio-physical, Policy, and Social.
- RESOURCES** (Top): Points to **Production**.
- Production** (Central oval): Points to **Distribution**.
- Distribution** (Central oval): Points to **Consumption**.
- Consumption** (Central oval): Points to **HEALTH, WELL-BEING**.
- HEALTH, WELL-BEING** (Bottom): Points to **Public health**.
- Other factors** (Surrounding ovals):
 - Agonomic practices** (Economic) points to Production.
 - Farming system diversification** (Bio-physical) points to Production.
 - Genetic improvement** (Bio-physical) points to Production.
 - Communication and education** (Policy) points to Consumption.
 - Food-related behaviours** (Policy) points to Consumption.
 - Food preparation** (Social) points to Consumption.
 - Policy support** (Policy) points to Consumption.
 - Food processing** (Economic) points to Distribution.

Among the components of the food system, e.g. food processing, communication and education, there is substantial overlap and interlinkage. For example, household decision-making behaviour with regard to food is influenced by nutrition knowledge and by cultural practices with regard to food allocation within the household as well as by purchasing power and market prices

[illegible]

Skill level 4	
4	
3	
2	
1	
0	
NR	

5. Discuss any contemporary food issue.

- Hint:*
1. *State the contemporary food issue.*
 2. *Describe the situation.*
 3. *Give reasons for it being a contemporary issue.*
 4. *Link with other situations giving examples.*

- c. Explain what is involved in the designing stage of the design process.

Explain your **THREE (3)** ideas in relation to your desired product.

Hint: 1. State the work done at the designing stage, giving examples.

2. Give reasons to why the work is done as such.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

d. Explain what is involved in the evaluation stage of the design process.

Hint: 1. State the work done at the designing stage, giving examples.

2. Give reasons to why the work is done as such.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

MAJOR AREA 4: TEXTILES AND GARMENT CONSTRUCTION

A: Multiple Choices Questions

Circle the letter of the **BEST** answer.

1. Which of the following fibres is synthetic?

- A. Polyester
- B. Viscose Rayon
- C. Flax
- D. Wool

Skill level 1	
1	
0	
NR	

2. Fibres are resilient if they are able to:

- A. Absorb water
- B. Spring back from compression
- C. Snap back after being stretched
- D. Block damaging ultraviolet rays

Skill level 1	
1	
0	
NR	

3. Which principle of garment design involves regular repetition of decorative details like pleats and buttons?

- A. Balance
- B. Emphasis
- C. Proportion
- D. Rhythm

Skill level 1	
1	
0	
NR	

4. Which of the following fabrics is most likely to be made from blending wool and cotton?



Skill level 1	
1	
0	
NR	

5. When removing strong stains like grease and oil from coloured clothes, the most suitable stain remover to use is _____.

A. Milk
B. Baking Soda
C. Hydrogen Peroxide
D. Vinegar

Skill level 1	
1	
0	
NR	

6. Which of the following would add height to a figure?

A. Widely spaced motifs
B. Vertical stripes
C. Sharply contrasted motifs
D. Border prints used along the hemline

Skill level 1	
1	
0	
NR	

7. Which of the following stages should be **first**?

A. Solutions Description
B. Problem Analysis
C. Problem Identification
D. Material Analysis

Skill level 1	
1	
0	
NR	

8. Identify the stage of the design process where the designer “**Explore issues about the problem**”.

A. Designing
B. Evaluating
C. Investigating
D. Making

Skill level 1	
1	
0	
NR	

9. Identify the stage of the design process where you ask the question of “**How well does it work**”?

A. Investigating
B. Designing
C. Producing
D. Evaluating

Skill level 1	
1	
0	
NR	

10. One of the following means “**Sketching the prototype and actually making it**” is a response to the problem identified.

A. Investigating
B. Designing
C. Producing
D. Evaluating

Skill level 1	
1	
0	
NR	

SECTION B: Short Answer Questions

Answer all the questions given.

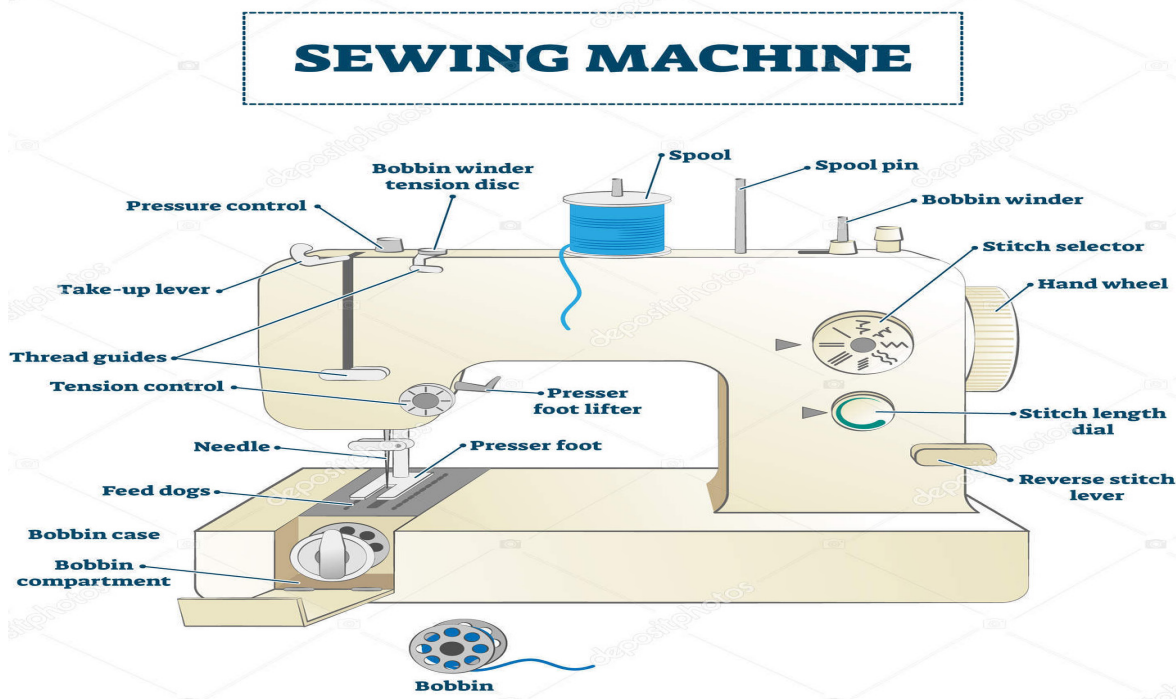
1. A very good understanding of the sewing machine and its various parts assists the user in understanding how to determine faults when they occur. The sewing machine must be kept in good working condition so as not to cause problems during the stitching process.

Write **THREE (3)** methods that you would recommend for the good care of a sewing machine.

- i. _____
- ii. _____
- iii. _____

2. Study the sewing machine in **Figure 1** below. Name any **THREE (3)** parts and define the function of each of those parts.

Figure 1



PARTS

FUNCTIONS

1. _____
2. _____
3. _____

- i. _____
- ii. _____
- iii. _____

Skill level 1	
1	
0	
NR	
Skill level 1	
1	
0	
NR	
Skill level 1	
1	
0	
NR	

Skill level 1	
1	
0	
NR	
Skill level 1	
1	
0	
NR	

3. a. Explain the importance of keeping the workshop clean.

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There are no vertical margin lines, text, or other markings on the page.

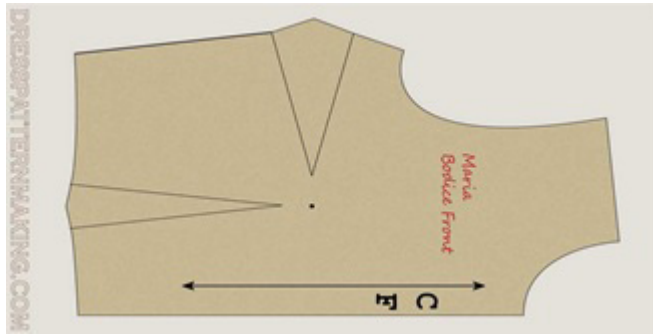
Skill level 3	
3	
2	
1	
0	
NR	

Explain the importance of working safely and completing tasks on time.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

4. The diagram below is part of a bodice block in garment construction.



- a. On the given bodice block, DRAW a “**Notch**” along the armhole
- b. Describe **ONE (1)** element of garment design evidenced in this bodice block construction.

Skill level 2	
2	
1	
0	
NR	

- c. Explain the purpose of the following techniques:

- i. Notch

Skill level 2	
2	
1	
0	
NR	

- ii. Dart

Skill level 2	
2	
1	
0	
NR	

- iii. French Seam

Skill level 2	
2	
1	
0	
NR	

- d. Explain what is involved in the investigating stage of the design process of this bodice.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

- e. Explain the stitch(s) one can use to mark or transfer some of the symbols from the pattern down to the fabric.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be a standard notebook page or a sheet of stationery.

Skill level 3	
3	
2	
1	
0	
NR	

- f. Describe how to handle the problem of skipping of stitches when using the sewing machine.

Skill level 2	
2	
1	
0	
NR	

C: Extended Response Questions.

1. An Interior designer requires fabric for upholstery in a living room.
Evaluate the **BEST** solution in the fabric needed by the interior designer for this purpose.

(Hint: 1. Consider the type and properties of fabric

2. Purpose for which the fabric is required

3. *Setting in which the fabric is to be used)*

[illegible]

Skill level 4	
4	
3	
2	
1	
0	
NR	

- The following fabrics were considered by a middle aged female client who needed two garments for dresses. One for a cool air conditioned office environment and the other for casual wear whilst doing household tasks at home in the hot tropical weather.

Fabrics: Rayon
Polyester
Silk
Cotton-linen blend

- Evaluate the fabrics listed above in terms of their strength, elasticity and shrinkage.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 4	
4	
3	
2	
1	
0	
NR	

- b. Select the proper fabric from those listed above for the cool air-conditioned office environment and explain your choice.

Proper fabric: _____

[illegible]

Skill level 3	
3	
2	
1	
0	
NR	

- c. Explain why silk is not an appropriate choice for casual wear when doing household routine tasks at home.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

- d. Classify the fabrics listed in **2.a.** in terms of their resilience from weakest to strongest.

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

- e. Differentiate on the proper storage conditions for the fabrics listed in **2.a.**

[illegible]

Explain the proper drying method for polyester and rayon fabrics.

- g. Compare the availability of the listed fabrics in **2.a.** in your own island and propose the **BEST** alternative fabrics for the client. Give reasons for your answer.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

3. Discuss the importance of texture, point, line and shape as design elements. Give examples.

(Hints: 1. Define texture, point, line and shape

2. Describe these design elements.

3. Give examples of each.

4. *Link their importance to the designed product.)*

[illegible]

Skill level 4	
4	
3	
2	
1	
0	
NR	

MAJOR AREA 5:**TECHNICAL GRAPHICS****A. Multiple Choice Question:**

Circle the letter of the **BEST** answer.

1. Identify the stage of the design process where “***Evaluate and document***” took place.

- A. Investigating
- B. Devising
- C. Making
- D. Evaluating

Skill level 1	
1	
0	
NR	

2. Identify the stage of the design process where “***could it be improved***” took place.

- A. Investigating
- B. Devising
- C. Making
- D. Evaluating

Skill level 1	
1	
0	
NR	

3. Name the stage of the design process where “***model or trail the proposal took place***”.

- A. Investigating
- B. Devising
- C. Making
- D. Evaluating

Skill level 1	
1	
0	
NR	

4. The best definition of ‘***Design brief***’ is;

- A. Clarify the problem
- B. Repair task
- C. Construct and build
- D. What remains to be done

Skill level 1	
1	
0	
NR	

5. Identify the type of drawing where 45° is used for projection.

- A. Orthographic
- B. Perspective
- C. Oblique
- D. Isometric

Skill level 1	
1	
0	
NR	

6. State the line of axis of the cylinder or sphere.

- A. Section line
- B. Hidden line
- C. Centre lines
- D. Leader lines

Skill level 1	
1	
0	
NR	

7. What is the purpose of short dashes thin line?

- A. Section drawing
- B. Hidden outline
- C. Centre line
- D. Leader line

Skill level 1	
1	
0	
NR	

8. Identify the difference between the section line and the centre line

- A. The width of the gap
- B. The length of the short dashes
- C. The length of the long dashes
- D. The two ends of the lines.

Skill level 1	
1	
0	
NR	

B. Short and Long Answer Question:

Answer all the questions given.

1. Design.

- a. Briefly describe the stage of '***making***,' in the design process.

Skill level 2	
2	
1	
0	
NR	

- b. What are the stages of **'design process'**.

Skill level 2	
2	
1	
0	
NR	

- c. Describe the importance of the stage of **'Evaluation'** in the design process.

Skill level 2	
2	
1	
0	
NR	

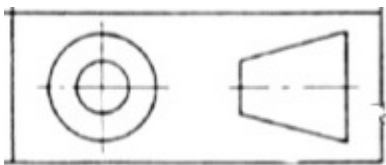
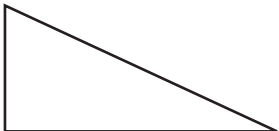
- d. Explain what is involved in the investigating stage of the design process of your project that you used in your ***Internal Assessment (IA)*** this year.

[illegible]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

2. **Standard Lines and Symbols**

a. Complete the table below by naming the following technical drawing symbols.

Technical Drawing Symbols		Name of Symbols
i.		
ii.		
iii.		

Skill level 1	
1	
0	
NR	

Skill level 1	
1	
0	
NR	

Skill level 1	
1	
0	
NR	

- b. The names of lines are listed in the table below. Complete the table by drawing the correct type of lines according to their names.

Technical Drawing Symbols		Name of Symbols
i.	Continuous thin	
ii.	Continuous chain thin	
iii.	Continuous dashes	
iv.	Continuous thick	

Skill level 1	
1	
0	
NR	

Skill level 1	
1	
0	
NR	

Skill level 1	
1	
0	
NR	

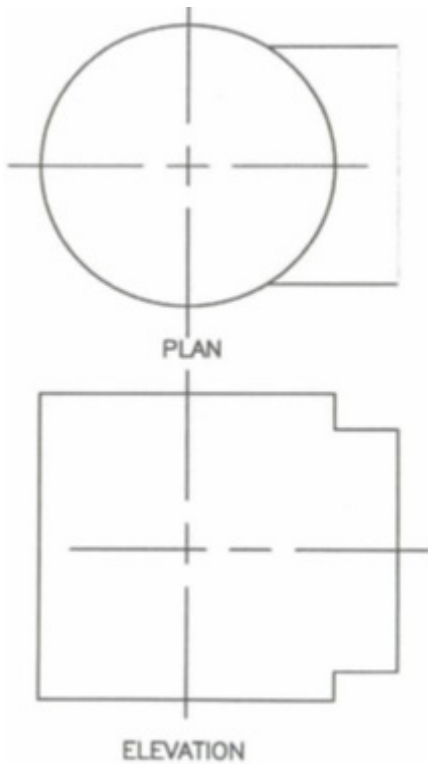
Skill level 1	
1	
0	
NR	

3. Interpenetration of Solid, Geometrical Construction and Forge.

- a. Identify the procedure of solving the intersection of solids.

Skill level 1	
1	
0	
NR	

- b. Complete the elevation of the intersection of the cylinders. Show all your construction line.



Skill level 3	
3	
2	
1	
0	
NR	

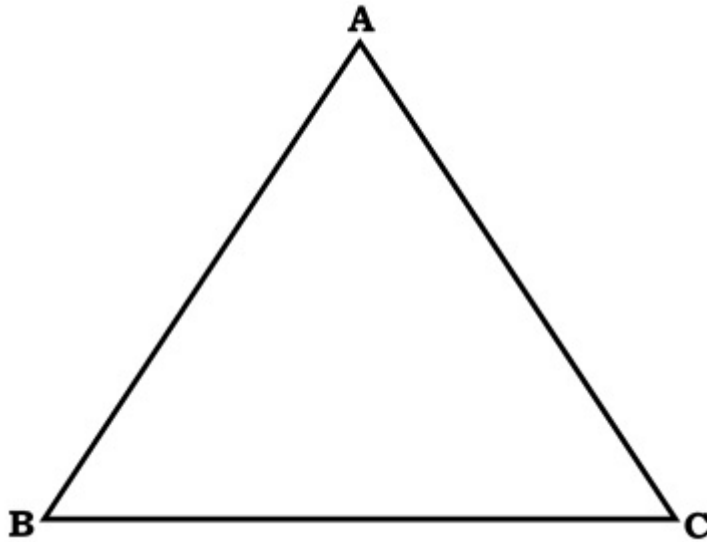
- c. List any **THREE (3)** different types of drawing that you used in your **Internal Assessment (IA)**.

Skill level 2	
2	
1	
0	
NR	

- d. Pick **ONE (1)** type of drawing from **c.** and give its definition.

Skill level 2	
2	
1	
0	
NR	

- e. Use the correct instrument with the correct method, and draw a circle inside the triangle **ABC** touching each side of the triangle.



Skill level 3	
3	
2	
1	
0	
NR	

- f. Construct an angle of 45° on line **AB** and 15° on line **XY**. Show all your work.

A _____ B

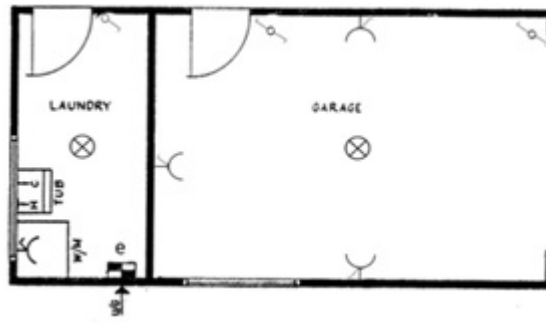
X _____ Y

Skill level 2	
2	
1	
0	
NR	

- g. Draw one complete turn of a right handed helica with 60mm mean diameter, a 40mm pitch and made from 12mm diameter wire.

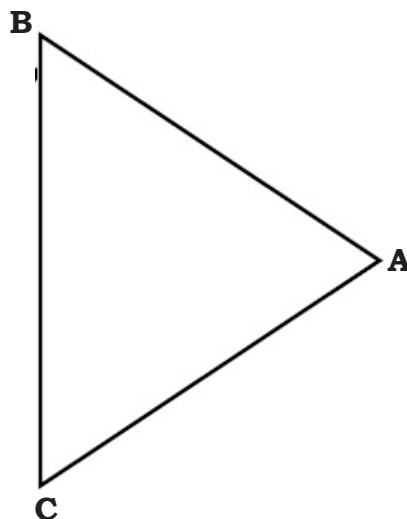
Skill level 3	
3	
2	
1	
0	
NR	

- h. Study the diagram carefully and interpret; what it means to you.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Skill level 3	
3	
2	
1	
0	
NR	

- i. Construct a circle to neatly touch the apex of the three corners of the triangle **ABC** given below.



Skill level 3	
3	
2	
1	
0	
NR	

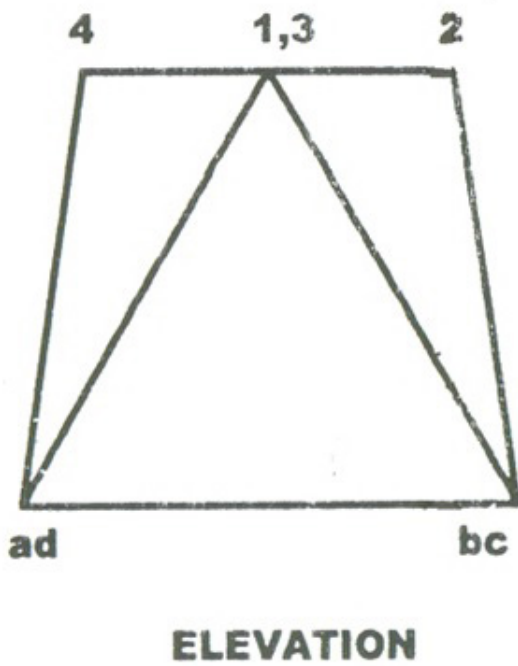
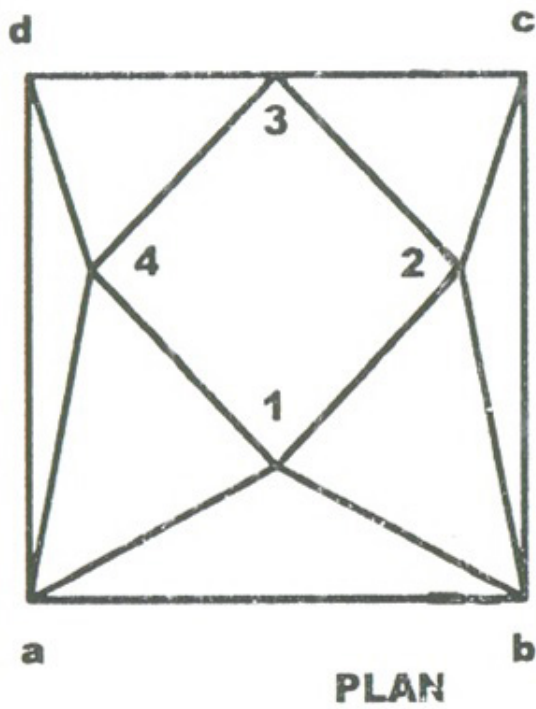
- j. Demonstrate the knowledge and understanding of the construction of regular polygon, using line **ST** to start with. Show all your work.

S  T

Skill level 3	
3	
2	
1	
0	
NR	

4. Development and True Length.

Study the given oblique square pyramid **1.2.3.4 abcd** below and answer the following questions.

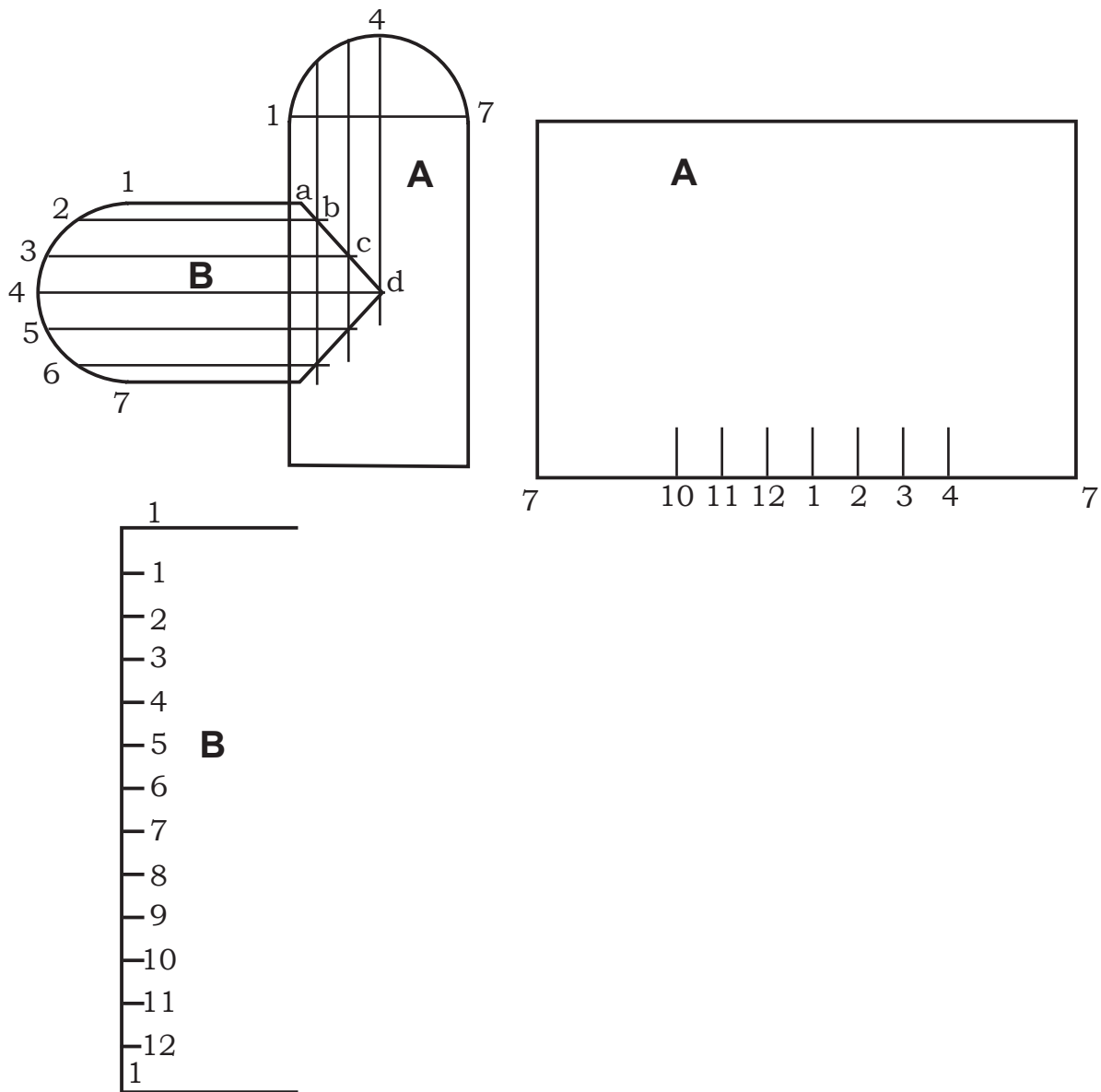


- i) True Length **1a** = 73 mm
- ii) True Length **2b** = 79 mm
- iii) True Length **3c** = 71 mm

- a. Draw the development of the oblique square pyramid **1.2.3.4 abcd** using triangular method.

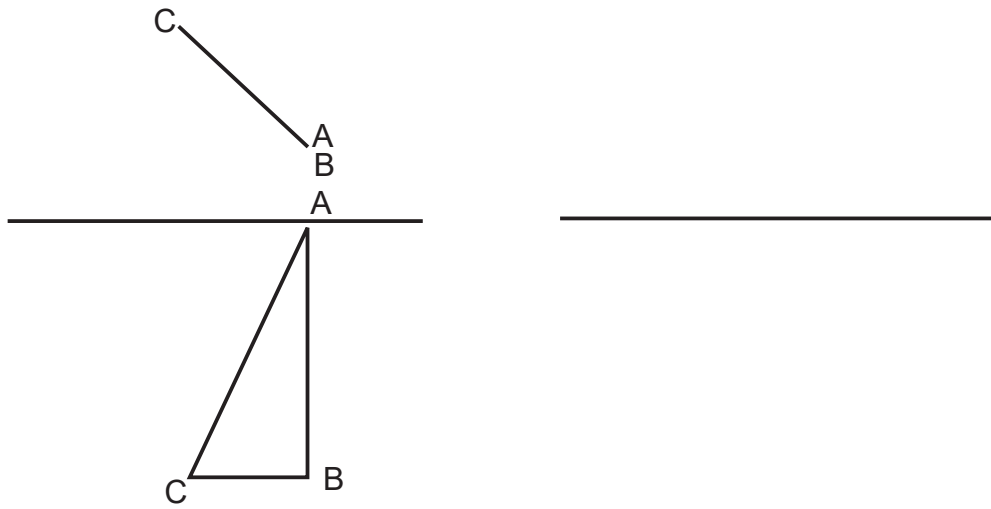
Skill level 4	
4	
3	
2	
1	
0	
NR	

b) Draw the development of the cylindrical tee-piece part **A** and part **B**.



Skill level 3	
3	
2	
1	
0	
NR	

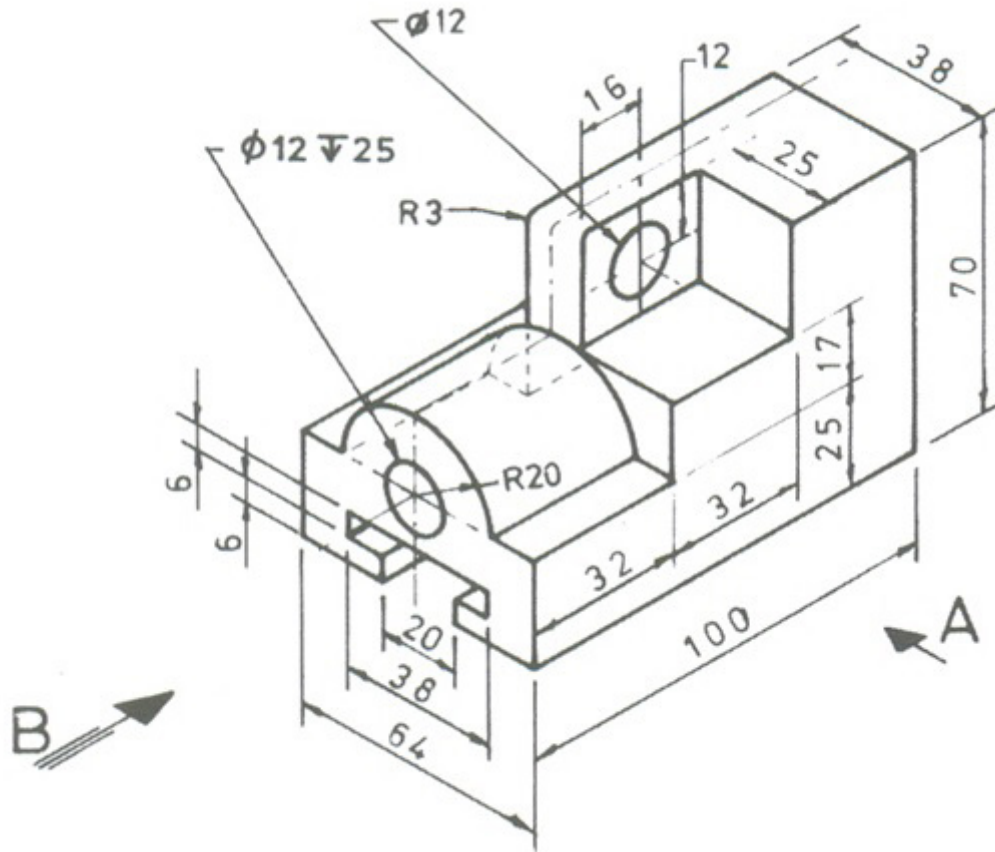
- c. Study the diagram and find the **true length** of its hypotenuse by drawing on the space given. Show all your work.



Skill level 3	
3	
2	
1	
0	
NR	

5. Orthographic and Assembly Drawing

- a. A CI Jaw Support is given below in Third Angle Projection. Use any scale to answer these questions.
 - i) Use the technical drawing instrument to draw the front view from direction A.
 - ii) A side view from direction B

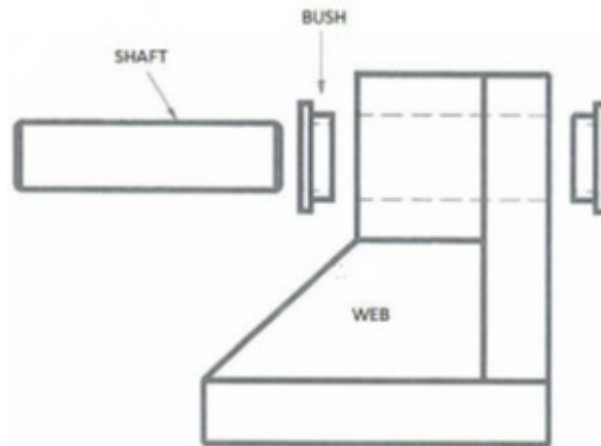


ANSWER QUESTION 5 a. i) and ii) IN THIS PAGE.

Skill level 4	
4	
3	
2	
1	
0	
NR	

- b. Below is an exploded front view of a CI Support Bracket.

Sketch Properly the assembly front view of the CI Support Bracket, taking into consideration the shaft, bushes and web.



CI Support Bracket

Skill level 4	
4	
3	
2	
1	
0	
NR	