

UNAM
UNIVERSITY OF NAMIBIA

FACULTY	SCHOOL OF EDUCATION AND HUMAN SCIENCES		
DEPARTMENT	DEPARTMENT OF INTERMEDIATE AND VOCATIONAL EDUCATION		
SUBJECT	DESIGN AND TECHNOLOGY 3A		
SUBJECT CODE	E3771ID		
DATE	JUNE 2026		
DURATION	3 HOURS	MARKS	100

SECOND OPPORTUNITY EXAMINATION

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Moderator: Dr J. Coetzee

This question paper consists of 5 pages including the front page and one (1) drawing pages.

Instructions:

- *Work in an orderly way and present your work as neat as possible.*
- *While most of marks will be awarded for content, candidates must bear in mind the importance of presentation, i.e. insight, accuracy and critical thinking.*
- *Number the questions correctly and clearly.*
- *Answer all questions.*
- *All drawings must be done on the paper provided.*

UNIVERSITY OF NAMIBIA EXAMINATIONS

QUESTION 1:

- 1.1. On the blank piece of paper provided at the back of this examination paper (labelled Question 1.1.), make a neat sketch of a cross section through a tree trunk and indicate the different parts and their locations. (8)
- 1.2. Explain the function of any two (2) parts mentioned in Question 1.1. (2)
- 1.3. Compare Conifers and Broadleaf trees through the following categories:
- 1.3.1. Appearance (2)
 - 1.3.2. Seeds (2)
 - 1.3.3. Leaves (2)
 - 1.3.4. Mass and hardness (2)
 - 1.3.5. Rays (2)
- [20]**

QUESTION 2:

- 2.1. **Medium Carbon Steel** is part of the ferrous metals. Elaborate on the metal through the following categories:
- 2.1.1. Carbon content (1)
 - 2.1.2. Melting Point (1)
 - 2.1.3. Colour (1)
 - 2.1.4. Properties (2)
- 2.2. **Copper**, on the other hand, is an example of non-ferrous metals. Explain the metal through the following categories:
- 2.2.1. Melting Point (1)
 - 2.2.2. Colour (1)
 - 2.2.3. Properties (3)
- 2.3. Describe the following metal manufacturing processes:
- 2.3.1. Impact Extrusion / Forward Extrusion (5)
 - 2.3.2. Press Forming (5)
- [20]**

QUESTION 3:

- 3.1. PVC or Polyvinyl Chloride is an example of thermoplastics and is one of the most used plastics in modern society. State any five (5) of this plastics many uses. (5)
- 3.2. Distinguish between compression moulding and injection moulding in plastic manufacturing. (6)
- 3.3. Thermosetting is plastics that undergoes a chemical reaction once heated where the molecules become permanently locked together. Compare and contrast Phenol formaldehyde (Bakelite) and Urea formaldehyde as examples of thermosetting plastics. (4)

[15]

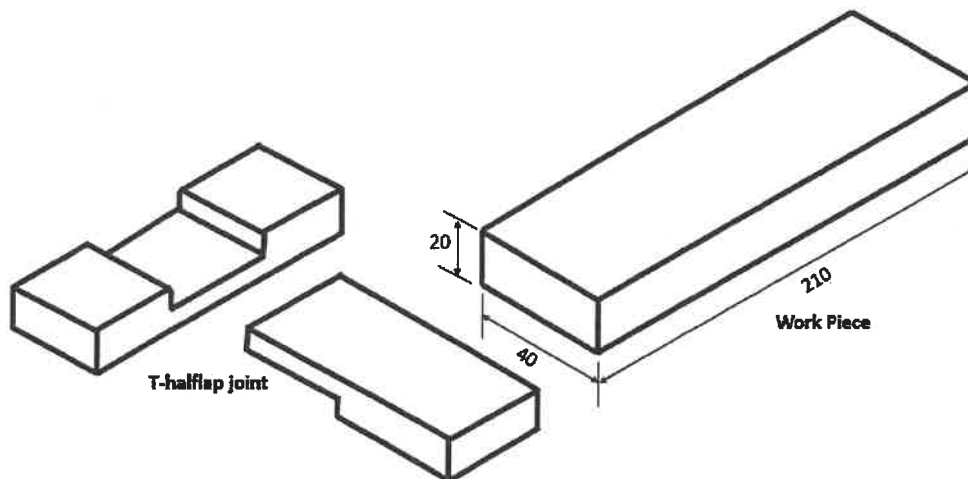
QUESTION 4:

- 4.1. Expound on the role that **Casting** plays in manufacturing (5)
- 4.2. Enumerate on any five (5) examples of casting in manufacturing. (5)
- 4.3. Differentiate between Drilling and Grinding in **Metal Machining**. (4)
- 4.4. Both real wood and manufactured boards has certain advantages. Mention any three (3) of these advantages for each type of wood. (6)

[20]

QUESTION 5:

- 5.1. Generally, there are five key safety rules that must be observed when working with tools and materials in the woodwork workshop. What are these five rules? (5)
- 5.2. List any five (5) of the key differences between hand tools and machine tools used in the woodwork workshop. (5)
- 5.3. Following is an exploded view of one of the common joints and a pictorial view of a work piece:



Using written instructions, elaborate in detail **step by step** how this joint should be marked out on the work piece and cut out to create the final joint assembly. Mention all the tools to be used in each step.

(15)

[25]

END OF PAPER

[TOTAL = 100 MARKS]

Please attach the paper to your answer sheet.

		QUESTION 1.1.		Student Number