



L-Università
ta' Malta

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SECONDARY EDUCATION APPLIED CERTIFICATE LEVEL
2023 SUPPLEMENTARY SESSION**

SUBJECT: **Engineering Technology**
PAPER NUMBER: Synoptic – Unit 1
DATE: 2nd November 2023
TIME: 2:30 p.m. to 4:35 p.m.

**THIS PAPER SHOULD BE RETURNED TO THE INVIGILATOR
AFTER THE EXAMINATION.**

For examiners' use only:

Question	1	2	3	4	5	6	Total
Score							
Maximum	6	8	8	8	8	12	50

Answer **ALL** questions in the space provided. You may answer either in English or in Maltese.

Scenario

- As part of the Engineering development in an industry, a technician with mechanical background is required to answer the following questions.
- The questions include Health and Safety aspects.

Question 1

K-1 (6 marks)

a. Name **FOUR** different PPEs (Personal and Protective Equipment).

PPE 1: _____ (0.5)

PPE 2: _____ (0.5)

PPE 3: _____ (0.5)

PPE 4: _____ (0.5)

b. Identify **FOUR** different PPEs required when removing bricks from a wall as shown in Figure 1 below.



Figure 1: Removing bricks from a wall in a construction site
(Source: pond5.com)

PPE 1: _____ (0.5)

PPE 2: _____ (0.5)

PPE 3: _____ (0.5)

PPE 4: _____ (0.5)

c. Describe the function of **TWO** PPEs required when cutting wood.

6





(2)

Question 2

K-4 (8 marks)

a. Identify the different measuring and marking out tools given in Table 1.

Table 1: Measuring and marking out tools.

	Measuring and marking out tools	Name
i.		<p>_____</p> <p style="text-align: right;">(0.5)</p>
ii.		<p>_____</p> <p style="text-align: right;">(0.5)</p>
iii.		<p>_____</p> <p style="text-align: right;">(0.5)</p>
iv.		<p>_____</p> <p style="text-align: right;">(0.5)</p>



(Source: <https://www.amazon.com>)

Question 3

K-5 (8 marks)

a. Label the tools and equipment used for cutting material given in Table 2.

Table 2: Cutting tools and equipment

	Cutting Tools and Equipment	Name
i.		<hr/> <p style="text-align: right;">(0.5)</p>
ii.		<hr/> <p style="text-align: right;">(0.5)</p>
iii.		<hr/> <p style="text-align: right;">(0.5)</p>
iv.		<hr/> <p style="text-align: right;">(0.5)</p>

(Source: amazon.com)

Question 4

K-7 (8 marks)

a. Identify the tools and equipment used for making permanent joints, given in Table 3.

Table 3: Tools and equipment

	Tools and Equipment for permanent joints	Name
i.		<p>_____</p> <p>(0.5)</p>
ii.		<p>_____</p> <p>(0.5)</p>
iii.		<p>_____</p> <p>(0.5)</p>
iv.		<p>_____</p> <p>(0.5)</p>

(Source: amazon.com)

b. Outline the function of the following tools and equipment used for making permanent joints:

Adhesives

(1)

Welding sets

(1)

c. Describe a preventive measure for each of the following tools when making permanent joints. Each preventive measure should be used once.

Welding sets

(2)

Brazing torch

(2)

b. Match the finishing tool given on the left with the task on the right.



A device which sprays a coating of paint, ink or varnish through the air onto a surface.



It is used to remove fine amounts of material from a workpiece starting from a rasp and finishing off with a fine one.



A power tool used to smooth surfaces by abrasion with sandpaper e.g. remove paint.



It levels out residue or remove excess of an applied product.

(2)

c. Describe the following **TWO** preventive measure when using finishing tools and equipment.

Wear appropriate PPE:

(2)

Remove loose clothing:

(2)

8

Question 6

C-2 (12 marks)

a. Outline the following **FOUR** tests that can be carried out on materials.

Shear: _____
_____ (1)

Temperature: _____
_____ (1)

Environmental degradation: _____
_____ (1)

Compression: _____
_____ (1)

This question continues on next page.

b. Explain the test needed to examine the maximum force a metal handle of a door can withstand.

(4)

- c.
- A ship is being built using steel sheets and rods.
 - There are different types of steel.
 - The structural engineer orders impact test on different types of steel before deciding which type should be used for the building of the ship.

Justify the test chosen to be carried out to select the best type of steel for this case.

(4)

