



L-Università
ta' Malta

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SECONDARY EDUCATION APPLIED CERTIFICATE LEVEL
2021 SUPPLEMENTARY SESSION**

SUBJECT:	Engineering Technology
PAPER NUMBER:	Synoptic – Unit 1
DATE:	3 rd November 2021
TIME:	4:00 p.m. to 6:05 p.m.

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

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

Scenario

- A technician who is working in an engineering company, is required to answer the following questions.
- The questions are about health and safety, measuring and marking out on different materials, cutting materials, joining materials, and finishing off a product.

Question 1

K-2 (6 marks)

- a. Match the following safety sign colours with their purpose by drawing a line between Column A and Column B.

Column A (Colours)

Red

Green

Yellow

Blue

Column B (Safety Signs)

No danger

Warning


Danger






Mandatory

(2)



- b. Write down the name of the safety signs given in Table 1.

Table 1 – Safety signs.

	Safety Sign	Name
i.	 <p>Source: https://legislation.mt/eli/sl/424.16/eng/pdf</p>	<p>_____</p> <p>(0.25)</p>

ii.	 <p>Source: https://legislation.mt/eli/sl/424.16/eng/pdf</p>	<hr/> <p>(0.25)</p>
iii.	 <p>Source: https://legislation.mt/eli/sl/424.16/eng/pdf</p>	<hr/> <p>(0.25)</p>
iv.	 <p>Source: https://legislation.mt/eli/sl/424.16/eng/pdf</p>	<hr/> <p>(0.25)</p>
v.	 <p>Source: https://legislation.mt/eli/sl/424.16/eng/pdf</p>	<hr/> <p>(0.25)</p>
vi.	 <p>Source: https://legislation.mt/eli/sl/424.16/eng/pdf</p>	<hr/> <p>(0.25)</p>

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vii.	 <i>Source: https://legislation.mt/eli/sl/424.16/eng/pdf</i>	<hr/> <p>(0.25)</p>
viii.	 <i>Source: https://legislation.mt/eli/sl/424.16/eng/pdf</i>	<hr/> <p>(0.25)</p>

c. Identify **FOUR** safety signs you would use in a construction site as in Figure 1.



Figure 1 – Construction Site
Source: <https://www.zurich.com/en/media/magazine/2020/>


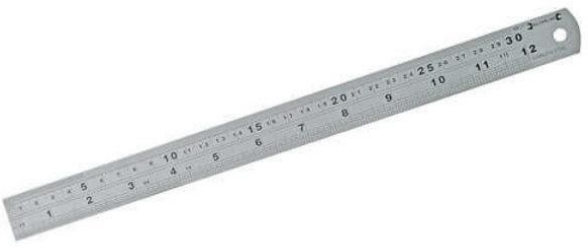


(2)

Question 2

K-4 (8 marks)

a. Identify the following measuring and marking out tools given in Table 2.

Table 2 – Measuring and marking out tools.

	Measuring and marking out tools	Name
i.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.25)</p>
ii.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.25)</p>
iii.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.25)</p>
iv.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.25)</p>
v.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.25)</p>

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<p>vi.</p>	 <p>Source: https://www.google.com</p>	<p>(0.25)</p>
<p>vii.</p>	 <p>Source: https://www.google.com</p>	<p>(0.25)</p>
<p>viii.</p>	 <p>Source: https://www.google.com</p>	<p>(0.25)</p>

b. Outline the function of the following measuring and marking out tools:

Centre Punch

(1)

Micrometre

(1)

c. Describe **ONE** appropriate measuring tool and **ONE** appropriate marking out tool a tile layer would use when installing floor tiles: to draw a straight line that stretches the length of the entire room; and to measure the walls of the room.

(4)

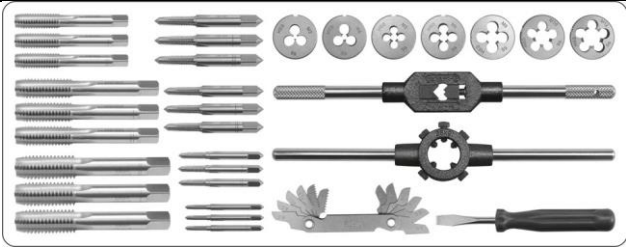



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Question 3

K-5 (8 marks)

a. Label the tools and equipment used for cutting material given in Table 3.

Table 3 – Cutting tools and equipment.

	Cutting Tools and Equipment	Name
i.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.5)</p>
ii.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.5)</p>
iii.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.5)</p>
iv.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.5)</p>

b. Outline the function of the following tools and equipment used for cutting materials:

Angle Grinder

(1)

Hack Saw

(1)

c. Describe **FOUR** preventive measures to be taken when using a jigsaw to cut out a piece of wood.

(4)

Question 4

K-6 (8 marks)

a. Identify the tools and equipment used for making non-permanent joints given in Table 4.

Table 4 – Tools and equipment for non-permanent joints.

	Tools and equipment for non-permanent joints	Name
i.	 <p>Source: https://www.google.com</p>	<p>(0.5)</p>
ii.	 <p>Source: https://www.google.com</p>	<p>(0.5)</p>
iii.	 <p>Source: https://www.google.com</p>	<p>(0.5)</p>
iv.	 <p>Source: https://www.google.com</p>	<p>(0.5)</p>

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

Filling knife

(1)

Rivet gun

(1)

c. Describe **ONE** preventive measure to be taken when using the filling knife and the rivet gun.

(4)

Please turn the page.

Question 5**K-8 (8 marks)**

a. Identify the finishing tools given in Table 5.

Table 5 – Finishing Tools.

	Finishing Tools	Name
i.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.5)</p>
ii.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.5)</p>
iii.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.5)</p>
iv.	 <p>Source: https://www.google.com</p>	<p>_____</p> <p>(0.5)</p>

b. Match the following Column A (finishing tools) to Column B (specific task), by drawing a line between Column A and Column B.

Column A (Finishing tools)

Column B (Tasks)



Polish the body of a car



Remove fine amounts of material from a piece of metal



Quickly remove paint from a plain door frame



Apply paint to a wooden piece of furniture

(2)

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c. Describe **FOUR** preventive measures to be taken when using finishing tools and equipment.

(4)

Question 6

C-1 (12 marks)

a. Figure 2 shows a worker using an angle grinder. Outline **TWO** benefits of using the correct PPE for this activity.



Figure 2 – Worker using an angle grinder
Source: <https://www.residencestyle.com/uses-of-angle-grinder/>

(4)

- b. A welder uses a welding helmet instead of regular face shield as shown in figure 3. Discuss this choice of PPE in terms of functional design and material.



Figure 3 – Welding
Source: <https://www.tuvie.com>

(4)

- c. A worker is making use of a circular saw as given in figure 4. Justify the use of the following PPE for the given scenario.

eye protection	hand protection
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Figure 4
– Worker using a circular saw
Source: <https://www.thedailygardener.com/how-to-use-circular-saw>

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