



**L-Università  
ta' Malta**

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE  
EXAMINATIONS BOARD

**SECONDARY EDUCATION CERTIFICATE LEVEL  
2018 MAIN SESSION**

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SUBJECT:	<b>Engineering Technology</b>
PAPER NUMBER:	Controlled – Unit 1
DATE:	28 <sup>th</sup> May 2018
TIME:	10:00 a.m. to 11:35 a.m.

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

**Name of candidate** \_\_\_\_\_

**I.D. number** \_\_\_\_\_

**School** \_\_\_\_\_

**Class** \_\_\_\_\_

Answer **ALL** questions in the space provided. The use of non-programmable electronic calculators is allowed.

**Scenario**

Health and safety is crucial for the appropriate and safe operation of any engineering enterprise. It is very important that workers take the necessary training to ensure they and their colleagues are safe when engaging in engineering activities. After initial training, you are requested to sit for this test so that managers decide whether you require further training before proceeding to work on more complex tasks.

**Question 1**

**K1 (4 marks)**

You are working on a metal lathe in an engineering enterprise.  
List **FOUR** items of personal and protective equipment that should be worn while conducting this task.

- (a) \_\_\_\_\_
- (b) \_\_\_\_\_
- (c) \_\_\_\_\_
- (d) \_\_\_\_\_










(4)

**Question 2**

**K3 (4 marks)**

Warning signs are essential to safeguard the health and safety of workers and any visitors in the engineering enterprise. Each warning sign provides a warning of a particular hazard. Identify each of the warning signs in Table 1 by writing their name in the space provided. The first one has been done for you.

Table 1 – Warning signs.

	Warning Sign	Name		Warning Sign	Name
		Harmful	(e)		
(a)			(f)		
(b)			(g)		
(c)			(h)		
(d)					

(4)

***Please turn the page.***

**Question 3**

**C1 (6 marks)**

Some of the chemical agents used in industry are very dangerous to man or the environment and hence need to be handled and stored carefully.

(a) Give **THREE** reasons explaining why it is important to use suitable packaging and labelling when storing dangerous chemicals.

(i)

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(ii)

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(iii)

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(3)

(b) Explain **THREE** features which a secured cabinet should have.

(i)

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(ii)

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(iii)

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(3)

**Question 4**

**K5 (4 marks)**

Figure 1 shows ongoing work in the printing press of the engineering enterprise. The workers are **not** respecting health and safety standards and procedures.

Briefly outline **FOUR** unsafe practices shown in Figure 1. Mark the practice with a circle and give it a letter corresponding to your answer below. An example has been done for you.

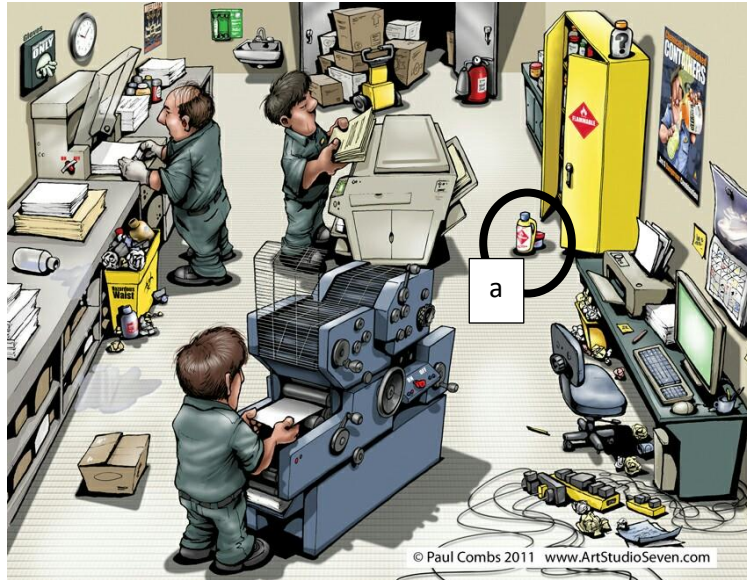


Figure 1 – Printing press with Health and Safety violations.

Source: <https://i.pinimg.com>

(a) A chemical bottle and a pot of paint have been left on the floor. This can lead to a person tripping on the floor. If the chemical bottle is spilt it could also create a dangerous situation.

(b)

(c)

(d)

(e)

(4)

**Question 5**

**C2 (6 marks)**

Risk identification is one of the cornerstones of health and safety. Damage to equipment, harm to self, and harm to others can occur due to non-observance of health and safety procedures.

- (a) Explain by giving **THREE** examples of hazards in a work environment which can result in the risk of damaging equipment.

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(3)

- (b) Explain by giving **THREE** examples of hazards in a work environment which can result in the risk of harming oneself.

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(3)



**Question 7**

**K9 (4 marks)**

Engineering enterprises use different industrial gases for different tasks. Gases are to be identified through different markings in the company’s premises to eliminate mistakes on the shop floor.

(a) Fill in the blanks below by identifying the correct colour or gas.

- (i) Oxygen cylinders need to have a \_\_\_\_\_ coloured neck. (½)
- (ii) A maroon coloured neck indicates that the cylinder contains \_\_\_\_\_ gas. (½)
- (iii) Red coloured backgrounds for labelling are used for pipes supplying \_\_\_\_\_ . (½)
- (iv) Pipes for compressed air must be labelled on a \_\_\_\_\_ background colour. (½)

(b) Engineering drawing uses different types of lines. Figure 2 shows some of the different lines used. With reference to Figure 2, identify which is the hidden line and the centre line, by filling in the empty spaces. The first one is done for you.

- (i) \_\_\_\_\_ Construction line.
- (ii) - - - - - \_\_\_\_\_ . (½)
- (iii) - - - - - \_\_\_\_\_ . (½)

Figure 2 – Different lines used in engineering drawing.

(c) Welding symbols are commonly used in technical drawings. They inform the welder about the type of weld required. Complete Table 2 by identifying the “Type of Weld” corresponding to the given “Welding Symbol”.

Table 2 – Welding Symbols.

	<b>Welding Symbol</b>	<b>Type of Weld</b>
(i)	○	
(ii)		

(1)



**Question 8**

**C5 (6 marks)**

Documents are crucial to communicate information in engineering enterprises. Hence, it is very important to correctly process and store these for possible future use. There are various factors which need to be considered when planning the upkeep and proper use of documentation.

(a) Explain the following **THREE** recommended good practices for the setting up of a proper document care and control system.

(i) Location and security

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(1)

(ii) Physical handling

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(1)

(iii) Document Control

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(1)

(b) Explain the difference between **THREE** types of documentation which are used by engineering enterprises.

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(3)

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