



**L-Università
ta' Malta**

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SECONDARY EDUCATION CERTIFICATE LEVEL
2018 SUPPLEMENTARY SESSION**

SUBJECT:	Engineering Technology
PAPER NUMBER:	Synoptic – Unit 1
DATE:	1 st November 2018
TIME:	10:00 a.m. to 12:05 p.m.

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

Answer ALL questions

Scenario:

You have just started working as an engineering technician in an international manufacturing company. In your first four months you will be based at the Health and Safety department, after which you will move to one of the manufacturing lines of the company. After your first month at the company you are asked to sit for a test to demonstrate your understanding of Health and Safety and engineering information within an engineering manufacturing environment. As part of the test you are requested to answer **ALL** the questions in this paper.

Question 1

K1 (4 marks)

One of the manufacturing lines of the company is dedicated to the manufacturing of steel parts for cars, where labourers are involved in cutting, welding and grinding processes.

List **FOUR** items of personal and protective equipment that should be provided by the employer and worn by labourers in this workshop.

Item 1 _____

Item 2 _____

Item 3 _____

Item 4 _____

Question 2

K2 (4 marks)

Describe the functions of the personal and protective equipment chosen in Question 1.

Item 1 _____

Item 2 _____

Item 3

Item 4

Question 3

A1 (15 marks)

Once a week, labourers from the Stores department receive steel metal in different forms. The labourers make use of fork lifters to transport this to the stores and eventually to manufacturing lines. In sunny summer days, since the containers are parked outside the premises, labourers find it more challenging to carry out this work. Legal Notice 121 of 2003 states that it is the responsibility of the employer to provide the necessary PPE and the employee to make use of this PPE.

You are requested to prepare a list of **FIVE** PPEs that labourers working in the Stores department need to make use of to carry out the work indicated above and explain the importance of each PPE for this work.

PPE	Importance of PPE for this work

(5)

(10)

Question 4

K3 (4 marks)

The Health and Safety Officer is responsible for setting up warning signs around the company's premises. Some of the warning signs are shown in Table 1 below. Identify the correct warning sign to the corresponding hazard. The first one is done for you.






	<p>Flammable</p>
	<p>Explosives</p>
	<p>Health Hazard</p>
	<p>Corrosive</p>
	<p>Oxidising</p>

Table 1

Question 5

K5 (4 marks)

Figure 1 shows employees working in the Stores department. It is evident that some of the employees are not respecting Health and Safety standards and procedures, and hence increasing the risk of harming themselves, their colleagues or damaging equipment. Outline **FOUR** hazards shown in Figure 1.



Figure 1
Source: <https://www.i0.wp.com>

a. Hazard 1

b. Hazard 2

c. Hazard 3

d. Hazard 4

Question 6

K6 (4 marks)

Risk Assessments are composed of several key areas. Some of these have been listed in Table 2.

a) Fill in the missing **THREE** key areas.

Key Area 1:	Key Area 2:	Key Area 3:	Key Area 4:	Key Area 5:
Hazard	_____	_____	Severity of Risk (Low, Medium, High)	_____

(3)

Table 2 – Key Areas of Risk Assessment

b) Identify the person that you would forward the risk assessment to.

(1)

Question 7

A2 (15 marks)

A new welder has recently joined the company where he is based in one of the manufacturing lines. On his first day of work he was caught welding using unsafe practices as shown in Figure 2 below.



Figure 2

Source: www.bmssafety.com

Carry out a basic risk assessment by identifying **THREE** potential hazards and completing Table 2 below. On the first row use the key areas identified in Question 6.

Key Area 1: Hazard	Key Area 2: _____	Key Area 3: _____	Key Area 4: Severity of Risk (Low, Medium, High)	Key Area 5: _____
(1)	(1)	(1/2)	(1/2)	(2)
(1)	(1)	(1/2)	(1/2)	(2)
(1)	(1)	(1/2)	(1/2)	(2)

Table 2 – Risk Assessment

Please turn the page.

Question 8

K7 (8 marks)

a. One of the workers cut his finger while working on metal sheets. Describe **FOUR** steps that are to be taken by a trained First Aider working in the same workshop to treat this injury.

(4)

b. While welding, documents that were left too close to the working area, caught fire.

i. What is the class of fire in this case?

(1)

ii. Which is the most suitable extinguishing agent to put out this fire?

(1)

iii. Describe the procedure to be followed in order to extinguish the fire.

(2)

Question 9

K8 (4 marks)

Manufacturing companies like the one you are working for are constantly communicating different types of technical information. In Table 2 below, name each diagram which is providing different technical information.

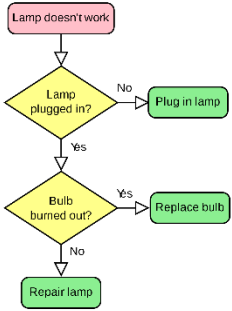
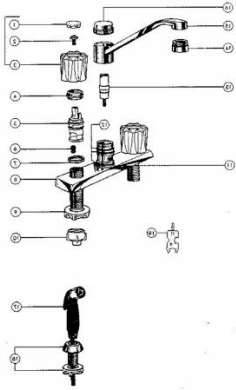
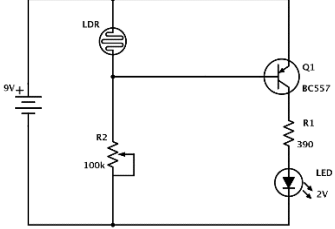
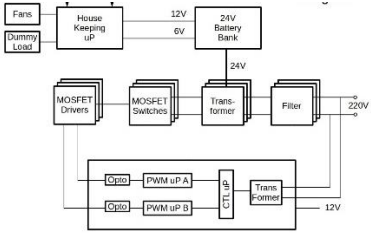
Diagrams	Technical Information
 <p>Source: https://www.mughals.info</p>	
 <p>Source: http://www.kenangorgun.com/</p>	
 <p>Source: http://www.farhek.com/</p>	
 <p>Source: http://www.readingrat.com</p>	

Table 2

Please turn the page.

Question 10

K9 (4 marks)

a. Identify the materials represented by the given abbreviations.

Abbreviation	Material
Cu	
Pb	
Al	
SS	

(2)

b. Identify the gas represented by the given colour code.

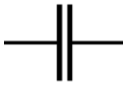

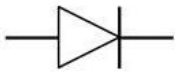

Colour Code	Gas
Grey	
Black	

(2)

Question 11

K10 (4 marks)

Identify the symbols of the electronic components found in the table below.

Symbol	Component
	
	
	
	

(2)

Question 12

C1 (10 marks)

Substances can be toxic, flammable, corrosive, or harmful to people and/or the environment. Therefore, Health and Safety officers give extensive training to staff dealing with dangerous substances in engineering companies.

a. List **TWO** reasons why dangerous substances should be stored in appropriate containers.

(3)

b. List **TWO** reasons why correct temperature conditions need to be maintained when storing dangerous substances.

(3)

c. Besides storing in appropriate containers and in correct temperatures, there are other important considerations that should be taken when dealing with dangerous substances. Explain **TWO** different points than the ones stated above.

(4)

Please turn the page.

Question 13

C5 (10 marks)

Documents are essential for engineering companies since these provide important information which can be technical or administrative in nature. Documents must be well kept and easily retrieved when needed.

a. Mention **FOUR** types of documents used in an engineering company.

(4)

b. Explain **TWO** important measures when physically handling documents.

(2)

c. Explain **TWO** important measures when storing documentation.

(2)

d. Explain **TWO** important measures required for the correct functioning of a documentation control system.

(2)

Question 14

C4 (10 marks)

Discuss **FIVE** points why company employees need to read and interpret technical information correctly.

a. Point 1

b. Point 2

c. Point 3

d. Point 4

e. Point 5

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