



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

MANUAL MANUFACTURING NQF LEVEL 2

(6030092)

**8 March 2019 (X-Paper)
09:00–12:00**

This question paper consists of 7 pages and 1 addendum.

**TIME: 3 HOURS
MARKS: 100**

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
 2. Read ALL the questions carefully.
 3. Number the answers according to the numbering system used in this question paper.
 4. ALL drawings must be neat and fully labelled.
 5. Complete the ADDENDUM (attached) and place it in the ANSWER BOOK.
 6. Write neatly and legibly.
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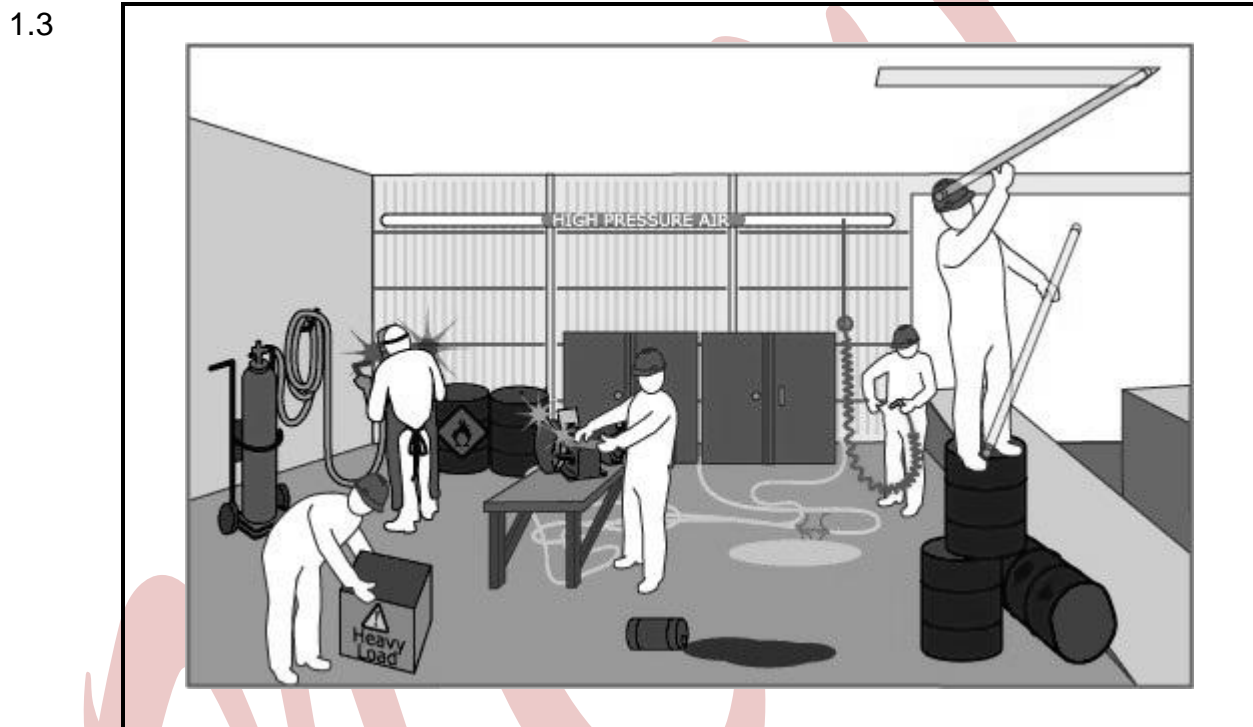
QUESTION 1

1.1 Health and safety in a workshop are very important to all employers, employees and visitors.

Give FIVE basic first-aid procedures for handling epileptic convulsions. (5)

1.2 Pollution is the discharge of material or energy into water, air and land that causes, or may cause, short-term or long-term harm to the ecological balance of the earth.

Draw a fully labelled pollution-prevention hierarchy. (4)



[Source: <https://www.google.co.za/search?q=images+of+hazards+in+the+workplace>]

FIGURE 1

Identify SIX dangerous acts depicted in FIGURE 1.

(6)
[15]

QUESTION 2

2.1 Engineering drawings should be drawn to scale and be accurate. Dimensions are also very important when drawing any engineering component.

Give FIVE principles of good dimensioning. (5)

2.2 Bisecting is used to determine the centre of a given line.

Illustrate, with the aid of sketches, FIVE steps to determine the centre of a line 7 cm in length. (5)
[10]

QUESTION 3

3.1 Measuring equipment is used to mark out lines and drill points onto a workpiece. Although this equipment is not a safety hazard, some precautions must be considered when using the equipment.

Explain FIVE precautions to take before, during and after using measuring equipment. (5)

3.2

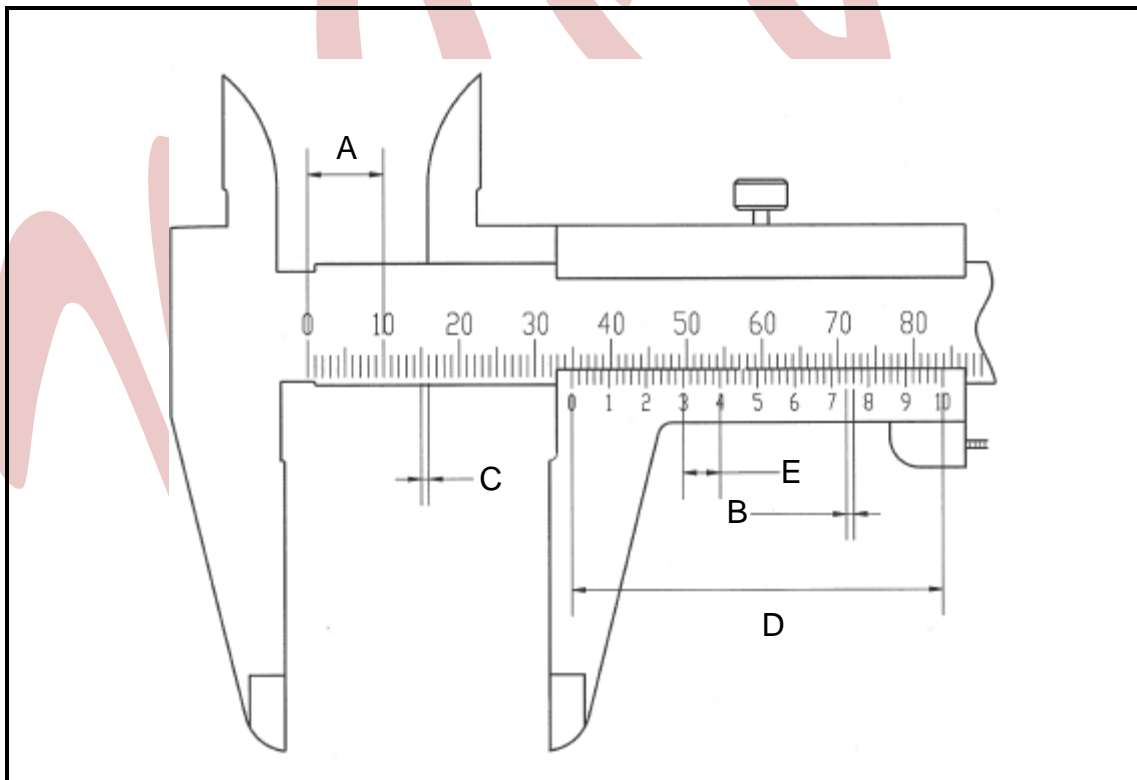


FIGURE 2

Identify the values of the measurements indicated in FIGURE 2 by writing only the answer next to the letter (A–E) in the ANSWER BOOK. (5 × 1) (5)

3.3 A screw thread is a ridge of uniform section in the form of a helix cut around the circumference of a cylinder advancing along the axis.

Make a fully labelled drawing to explain screw-thread terminology. (10)

3.4 List FIVE points to consider when caring for and maintaining taps while working with it.

(5)
[25]

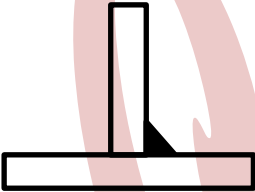
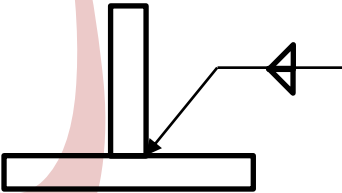


QUESTION 4

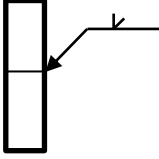
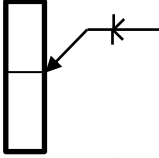
4.1 Give FIVE safety considerations to bear in mind when soldering. (5)

4.2 Explain the term *arc eyes*. (4)

4.3 Welding symbols are used to identify where welding must be done.

Complete the following table by drawing the answer next to the letter (A–F) in the ANSWER BOOK.

DETAIL	SECTION
	<p style="text-align: center;">A</p>
<p style="text-align: center;">B</p>	
	<p style="text-align: center;">C</p>
	<p style="text-align: center;">D</p>

E	
F	

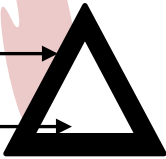

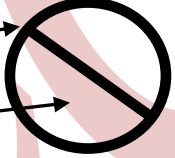
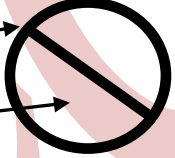

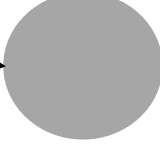
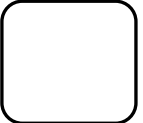
(6 × 2) (12)

4.4 Explain how to tin the tip of a soldering iron. (4)

4.5 Explain different ways of cleaning the tip of a soldering iron and preparing the tip for soldering. (5) [30]

QUESTION 5

5.1 Give the purpose of each of the following symbols by writing only the answer next to the letter (A–E) in the ANSWER BOOK.

PURPOSE	SIGN
A	Black →  Yellow → 
B	Red →  White → 
C	Green → 
D	Blue → 
E	White or colour sign 

(5 × 1) (5)

5.2 Name THREE types of nonferrous metals.

(3)

5.3 FIGURE 3 shows a hammer head made of mild steel.

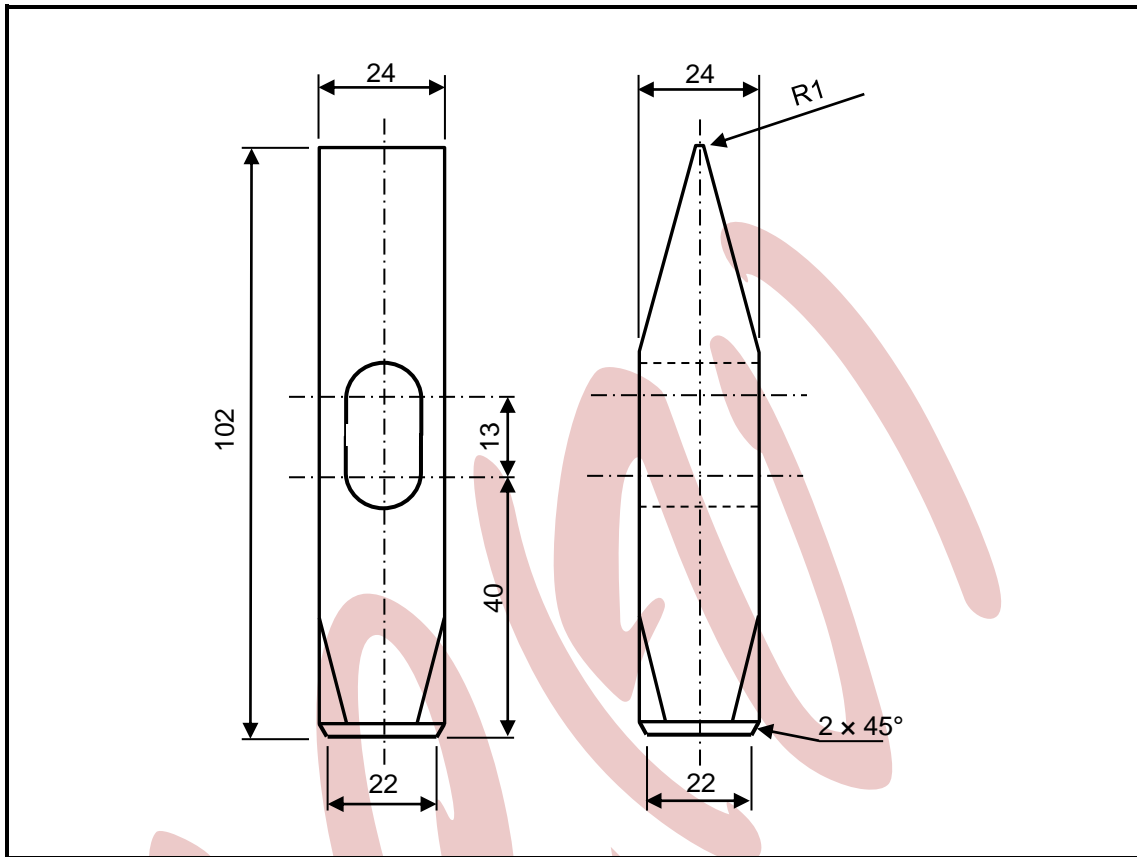


FIGURE 3

Use the ADDENDUM (attached) to complete the project plan to manufacture the hammer head made of mild steel shown in FIGURE 3 in the correct sequence.

(12)
[20]

TOTAL: 100

ADDENDUM

EXAMINATION NUMBER:

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QUESTION 5.3

Work plan					
Name:					
Name of task:					
Start date:				End date:	
Bill of materials					
Part name:	No:	Material:	Size:	Unit cost :	Total cost:
Procedural plan					
<i>List ALL operations to be performed in the correct sequence and list the tools and equipment needed to accomplish the work task according to the plan.</i>					
Item	Operation			Tools	