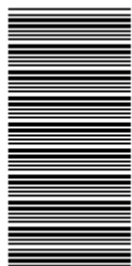


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**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

**MANUAL MANUFACTURING
NQF LEVEL 2**

SUPPLEMENTARY EXAMINATION

(6030092)

**28 February 2014 (X-Paper)
09:00–12:00**

This question paper consists of 6 pages and 1 addendum.

<p>TIME: 3 HOURS MARKS: 100</p>

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. Complete the attached ADDENDUM and hand it in with your ANSWER BOOK.
 5. NO drawing instruments may be used. only a pencil and rubber are to be used in producing the freehand drawings.
 6. Write neatly and legibly.
-

QUESTION 1

- 1.1 Draw a table in the ANSWER BOOK and fill in the FOUR classes of fire, their combustible material and method of extinguishing. (4 x 3) (12)
- 1.2 Name THREE elements of fire. (3)
- 1.3 FIGURE 1 below, is an isometric view.

Draw the THREE orthographic views in first-angle projection (freehand drawing). Insert ONE dimension per view and also the symbol.

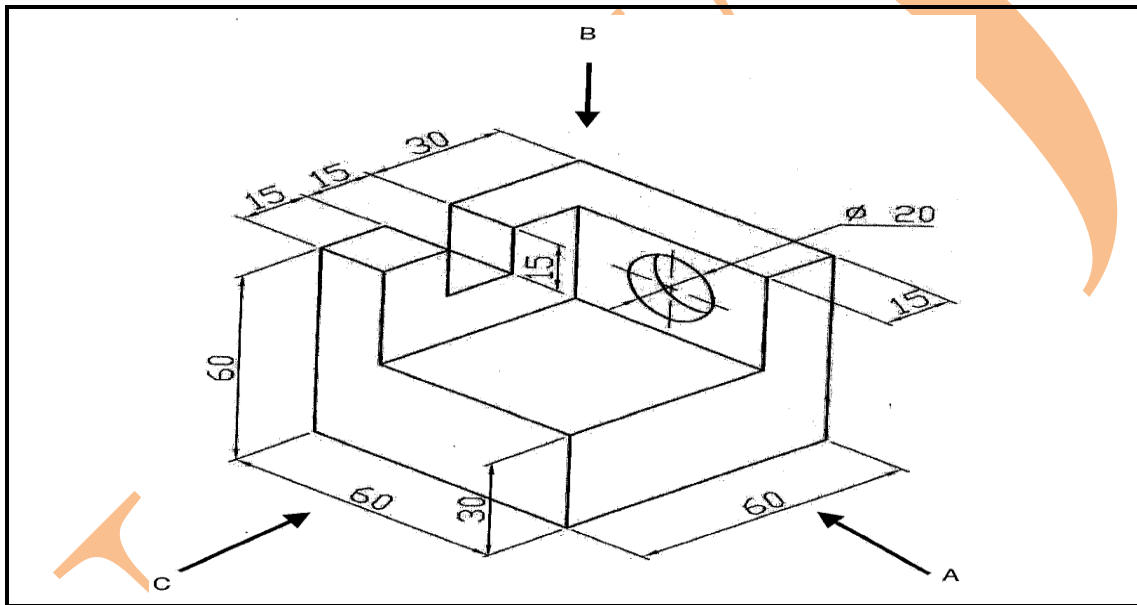


FIGURE 1

(10)
[25]

QUESTION 2

- 2.1 A worker is cutting a metal work piece with a hacksaw and the hacksaw blade breaks.
Name FIVE causes why the blade broke. (5)

2.2 In the workshop you have been given the task to make a template. The following processes are to be completed in order to finish the template.

Identify the correct tool for each process listed below:

- 2.2.1 A tool used to remove the coarse material so as to make the sides square
- 2.2.2 A tool used to smooth the surfaces of the material

2.2.3 A tool used to check that the surfaces are flat and at 90° to each other

2.2.4 A tool used to draw the lines so as to mark out the work

2.2.5 A tool used to draw the arc

2.2.6 A tool used to cut the thread of the tapped hole

2.2.7 A tool used to mark the spot where the hole is to be made

2.2.8 A tool piece used to cut the hole

(8 × 1) (8)

2.3 Choose a description from COLUMN B that matches an item in COLUMN A. Write only the letter (A–E) next to the question number (2.3.1–2.3.5) in the ANSWER BOOK.

COLUMN A		COLUMN B	
2.3.1	Socket spanner	A	has an accuracy of 0,5
2.3.2	Ring test	B	used mainly to support work piece when measuring or marking off
2.3.3	Vernier protractor	C	is the flow of free electrons in a circuit
2.3.4	Parallel angle plate	D	is used in areas where open-ended spanners cannot be used
2.3.5	Electric current	E	is a process used to identify cracks on a grinding wheel

(5 × 1) (5)

2.4 When loosening or fastening an object with a screwdriver, there are FIVE safety precautions to consider related to a screwdriver.

Name these FIVE precautions.

(5)

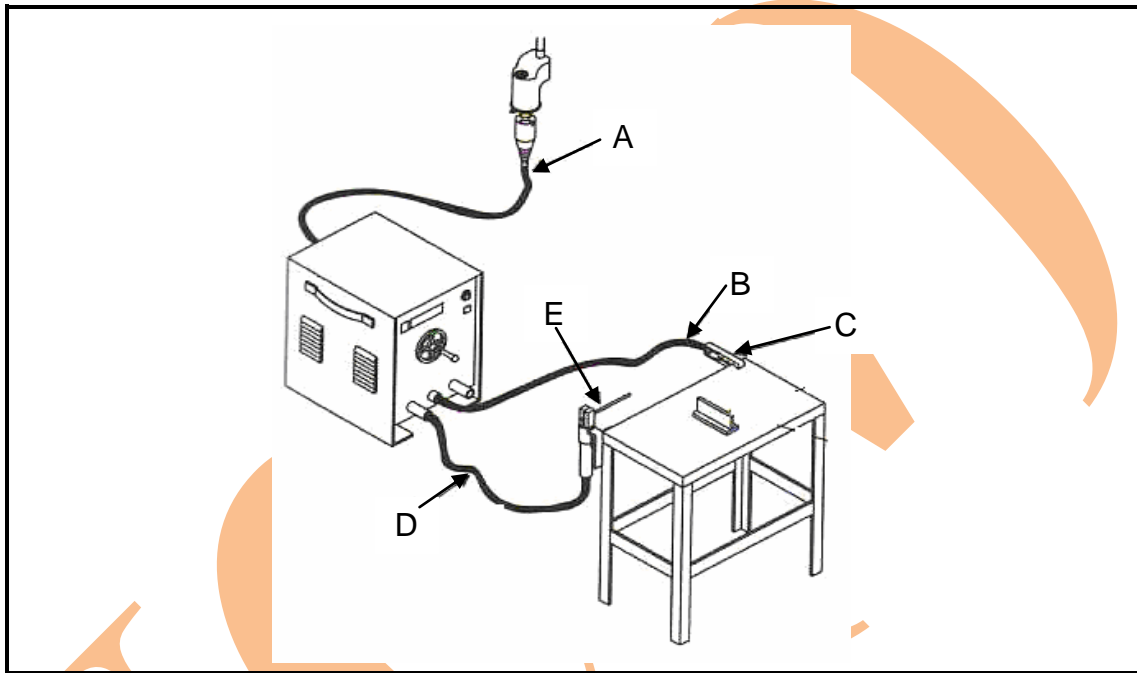
2.5 Name any TWO components that you will find on a grinding wheel.

(2)

[25]

QUESTION 3

- 3.1 What is the difference between *gas welding*, *TIG welding* and *MIG welding*? (6)
- 3.2 Identify the system shown in FIGURE 2 below. (1)
- 3.3 Label the parts (A–E) in FIGURE 2 below by writing them down in the ANSWER BOOK.

**FIGURE 2**

- 3.4 As a mechatronics technician, you are requested to perform the joining of metal using soldering. (5)
- What are the FOUR factors to consider when selecting a soldering iron? (4)
- 3.5 Illustrate, with the aid of a freehand drawing, the symbols of the following welding joints: (5 × 2) (10)
- 3.5.1 Butt joint
 - 3.5.2 Tee joint
 - 3.5.3 Lap joint
 - 3.5.4 Edge joint
 - 3.5.5 Corner joint

3.6 Copy TABLE 1 below in the ANSWER BOOK and distinguish between the colours used for workshop floors.

COLOUR	DESCRIPTION	WHAT IT MEANS
Yellow		
Grey		

TABLE 1

(4)
[30]

QUESTION 4

4.1 Rearrange the following safety sign abbreviations to match the correct meanings:

WW Safety clothes signs

FB Informative signs

GA Prohibitive signs

PV Warning signs

MW Fire-equipment signs

(5 x 1)

(5)

4.2 Study FIGURE 3 of the template below with the dimensions of 50 x 80 x 5 mm mild steel material.

Complete the work plan on the attached ADDENDUM and insert it into the ANSWER BOOK.

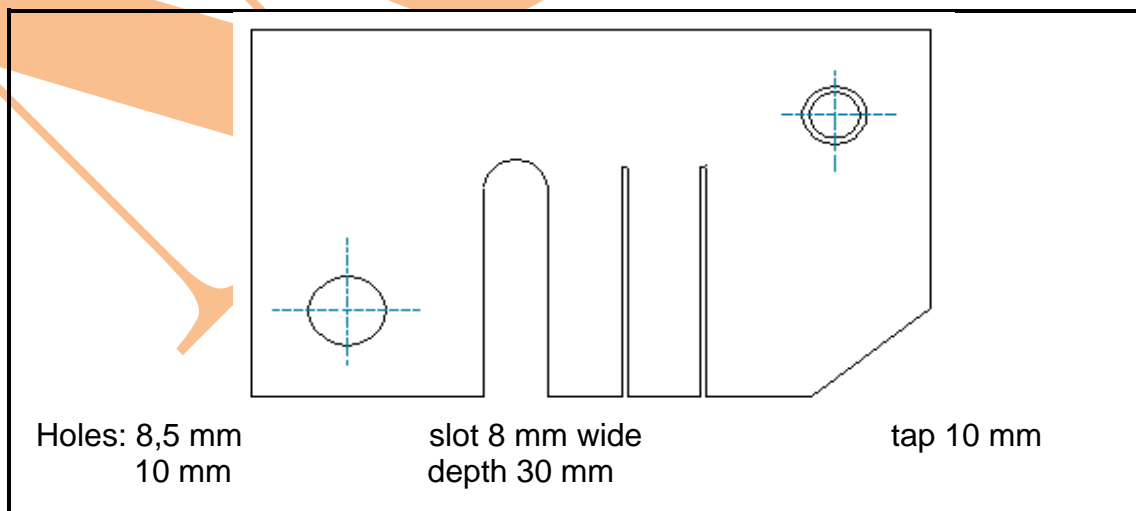


FIGURE 3

(10)

4.3 Name FIVE uses of tufnol.

(5)
[20]

TOTAL:

100

ADDENDUM

EXAMINATION NUMBER:

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CENTRE NUMBER:

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QUESTION 4

4.2

Work plan	
NAME:	
Name of task:	
Start date:	End date:

Procedure plan

PROCESS	TOOLS/EQUIPMENT