higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

MANUAL MANUFACTURING
NQF LEVEL 2

NOVEMBER 2011

(6030092)

11 November (X-Paper)
09:00 – 12:00

This question paper consists of 8 pages and 2 annexures.

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. Complete ANNEXURE A and B and hand it in with the ANSWER BOOK.
5. NO drawing instruments are to be used, only a pencil, ruler and rubber are to be used in ANNEXURE A.
6. Write neatly and legibly.

QUESTION 1

1.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'true' or 'false' next to the question number (1.1.1 – 1.1.7) in the ANSWER BOOK.

1.1.1 The ON button on a machine is normally coloured green and the OFF button red. (1)

1.1.2 The acronym NOSA stands for National Occupational Safety Association. (1)

1.1.3 Machine guarding is not important on rotating machinery. (1)

1.1.4 One cannot be electrocuted when working with water and electricity simultaneously. (1)

1.1.5 One of the potential hazards in a workshop is a wet floor. (1)

1.1.6 It is safe to work on a pedestal drill wearing loose clothing. (1)

1.1.7 It is important to report any damaged equipment or tools while working. (1)

1.2 Study FIGURE 1 below and answer the following questions:

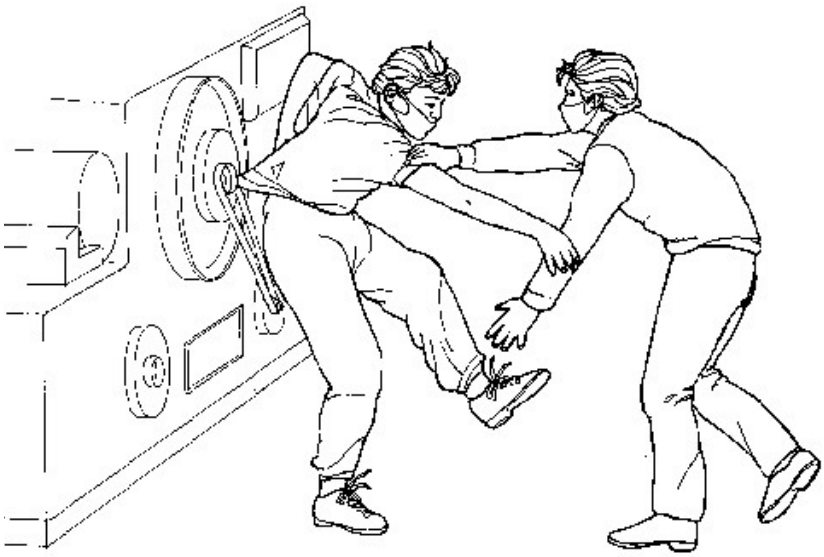


FIGURE 1

1.2.1 Explain what is the potential hazard? (1)

1.2.2 Describe how the potential hazard can be prevented. (1)

1.2.3 Explain why the workers are wearing masks. (1)

1.2.4 Explain why the workers are wearing safety boots. (1)

1.2.5 Give TWO characteristics of good safety boots. (2)

1.2.6 State TWO other hazard prevention methods. (2)
[15]

QUESTION 2

Consider the drawing of a cast iron bracket shown in ANNEXURE A, measure the drawing and add ALL appropriate dimensions.

Ensure that you PRINT the required information when you complete ANNEXURE A and hand it in with your examination script.

Use a ruler to make the measurements. **[10]**

QUESTION 3

3.1 FIGURE 2 below show a type of tool used in industry.

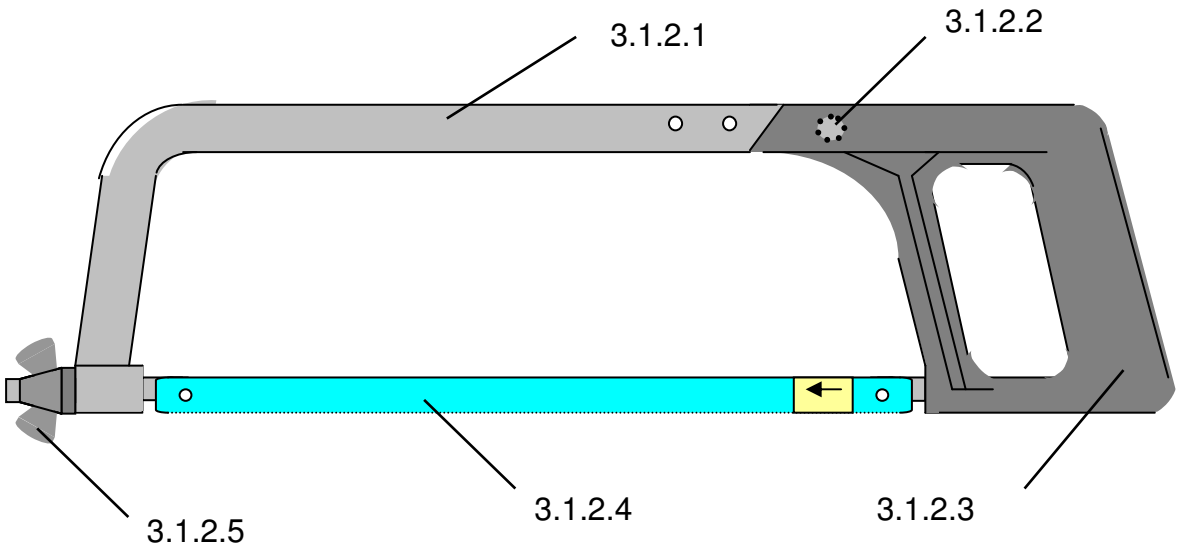


FIGURE 2

3.1.1 Identify the forming tool shown in FIGURE 2 above. (1)

3.1.2 Identify the parts of the forming tool in FIGURE 2 above. Write only the answer next to the question number (3.1.2.1 – 3.1.2.5) in the ANSWER BOOK. (5)

3.2 Link the given blade and the correct use from the given applications as shown in FIGURE 3 below. Write only the answer next to the question number (3.2.1 – 3.2.3) in the ANSWER BOOK.

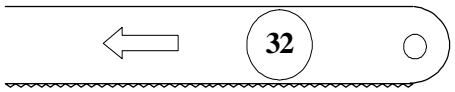
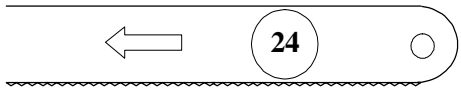
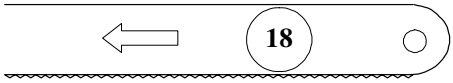
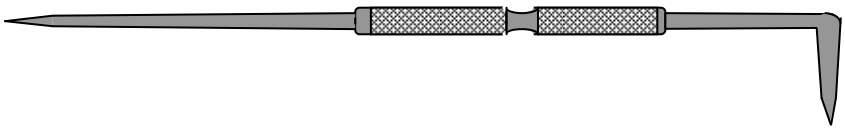
3.2.1 	A General Purpose
3.2.2 	B Hard materials and thin materials (including thin walled tubing)
3.2.3 	C Soft materials and thin materials

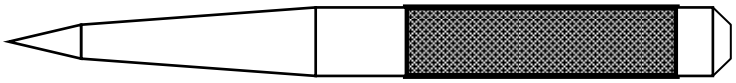
FIGURE 3 (3)

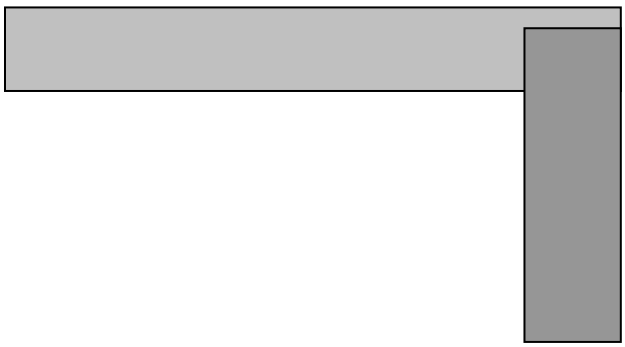
3.3 List and explain the characteristics of the THREE materials used in the manufacture of hacksaw blades. (6)

3.4 Explain the purpose of marking out procedures when producing a component. (2)

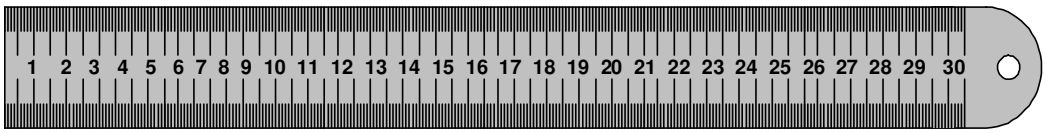
3.5 Different marking-off is used in industry. Identify the following marking-off tools.

3.5.1  (1)

3.5.2  (1)

3.5.3  (1)

3.5.4



(1)

3.6 Explain, with the aid of a sketch, the procedure you will follow to check an engineering square for squareness. (4)

[25]

QUESTION 4

4.1 You are to wear protective clothing when performing electric arc welding applications.

List THREE common items of protective clothing that you are required to wear. (3)

4.2 Draw simple sketches of the indicated joints and explain how you would prepare them for the gas welding process considering material thickness.

4.2.1 Butt joint. (2)

4.2.2 Single bevel butt joint. (2)

4.2.3 Double bevel butt joint. (2)

4.3 You are required to perform a gas-welding task.

List FIVE safety rules that must be considered when working in a welding bay. (5)

4.4 Sketch THREE drawings illustrating the difference between an oxidising flame, carbonising flame and a neutral flame. (6)

4.5 Sketch a fully labelled freehand drawing to illustrate the construction of a gas-welding torch. (6)

4.6 Explain the fundamental difference between gas welding and gas cutting. (4)

[30]

QUESTION 5

5.1 On the 25th of May 2010 during a factory shut down period Mr Smith, a mechatronics technician entered into an unauthorised section of the paint shop. He tripped on a hammer laying in the walkway that had just been washed down (there were no warning signs posted) preventing him from regaining his balance thus resulting in him slipping and dislocating his knee.

You heard his scream of anguish and offered to help while noting that some of the lighting system had failed, resulting in poor lighting.

Complete the accident report in ANNEXURE B and hand it in with your ANSWER BOOK. (10)

5.2 List FIVE basic elements of good housekeeping. (5)

5.3 Different signs are used in industry. Identify the safety signs below. Write the question number and the correct answer in your examination book.

5.3.1

(1)

5.3.2

(1)

5.3.3

(1)

5.3.4

(1)

5.3.5 

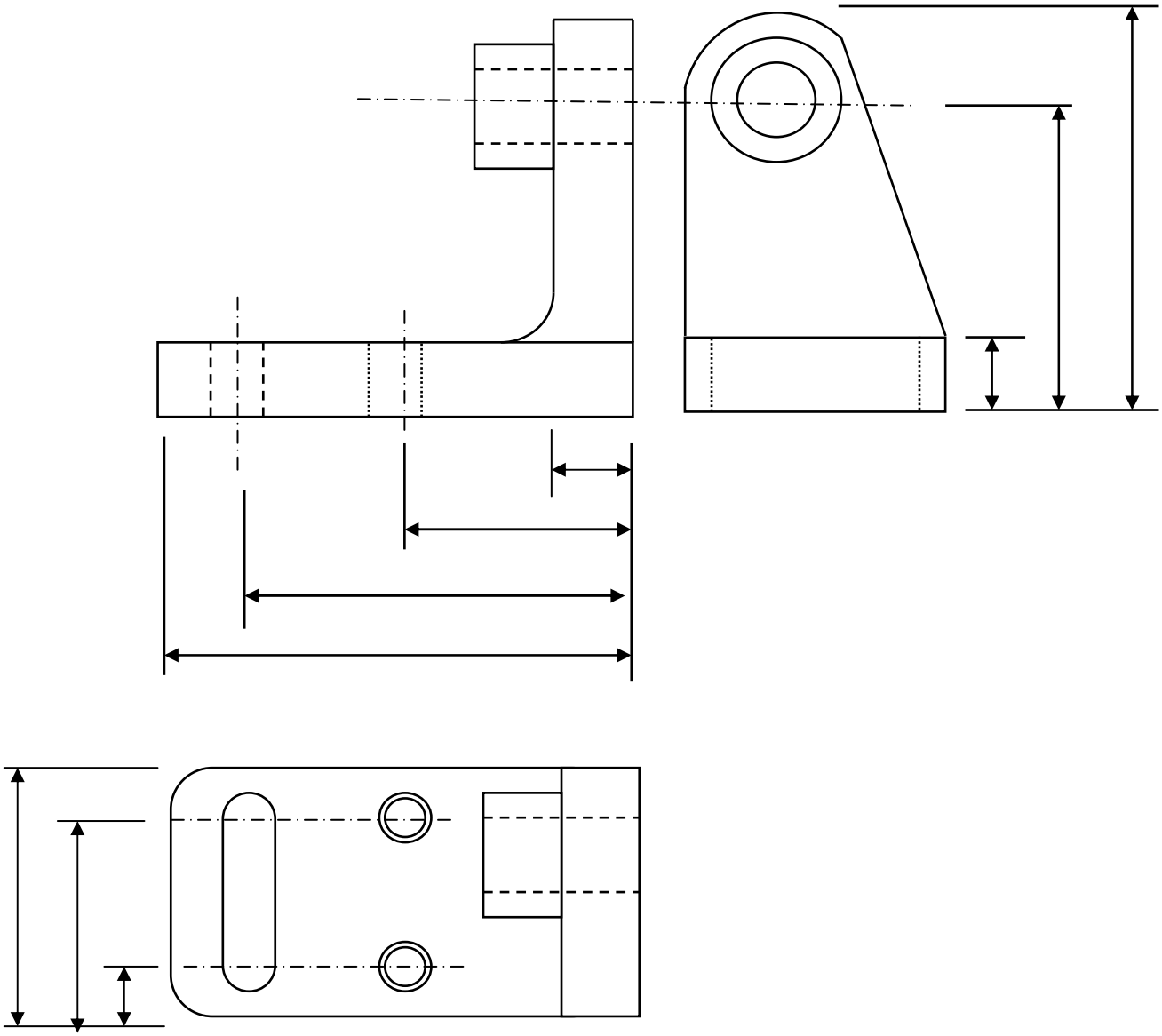
(1)
[20]

TOTAL: 100

ANNEXURE A

EXAMINATION NUMBER:

CENTRE NUMBER:



ANNEXURE B

EXAMINATION NUMBER:

CENTRE NUMBER:

ACCIDENT REPORT

NAME OF INJURED: | DATE REPORTED:

LOCATION OF INCIDENT: | DATE & TIME OF INCIDENT:

DESCRIPTION OF DAMAGE:

DAMAGE/INJURY/LOSS

BUILDING		EQUIPMENT		FLOOR		MACHINERY		VEHICLE		INJURY		PRODUCT

GENERAL CAUSES

STRUCK	FALL	HANDLING	TRANSPORT	FIRE	MACHINE	ELECTRICITY	FALLING OBJECTS	STRUCK AGAINST
Was this in the course of normal duties							**YES**	**NO**

UNSAFE ACTS		UNSAFE CONDITIONS		PERSONAL FACTORS
OPERATING WITHOUT AUTHORITY		INADEQUATELY GUARDED		LACK OF KNOWLEDGE/ SKILL
OPERATING AT UNSAFE SPEEDS		UNGUARDED		PHYSICALLY/MENTAL
DISABLING SAFETY DEVICES		DEFECTIVE TOOLS AND EQUIPMENT		NCOMPATIBILITY
USING EQUIPMENT UNSAFELY		HAZARDUOUS ARRANGEMENT		IMPROPER ATTITUDE
USING UNSAFE EQUIPMENT		UNSAFE DESIGN OR CONSTRUCTION		MOTIVATION
UNSAFE LOADING/PLACING		POOR LIGHTING		**JOB FACTORS**
TAKING UNSAFE POSITION		UNSAFE CLOTHING		INADEQUATE WORK STANDARDS
WORKING ON UNSAFE OR MOVING EQUIPMENT		POOR FLOOR CONDITION		HIGH RISK CONDITIONS
TRANSFER TO ANOTHER JOB		POOR VENTILATION		

CONTROL STEPS TO PREVENT REOCCURANCE

PERSONAL FACTORS		JOB FACTORS		
ATTEND TRAINING		WRITE WORK STANDARDS		MODIFY
GIVE PERSONAL INSTRUCTION		REVISE WORK STANDARDS		LOCKOUT
HAVE MEDICAL TIME TABLE		JOB SAFETY STANDARDS		HOUSEKEEPING
ATTEND SHE COMMITTEE		REVIEW PROCESS		REMOVE
COUNSEL/WARN/ENFORCE		GUARD		PROVIDE PROTECTION
		REPAIR		IMPROVE

EMPLOYER FOLLOW-UP ACTION

ACTION TAKEN	BY WHOM	WHEN
NAME & SIGNATURE OF EMPLOYER		**DATE:**