higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

WELDING
NQF LEVEL 2

(6031012)

22 November 2018 (X-Paper)
09:00–12:00

This question paper consists of 6 pages.

NCV

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. Write neatly and legibly.

NCV

QUESTION 1

Choose a description from COLUMN B that matches an item in COLUMN A. Write only the letter (A–K) next to the question number (1.1–1.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
1.1	Welding	A	the beginning of the weld at the intersection of the joined plates
1.2	Fillet-weld leg	B	consist of very little or no iron
1.3	Ferrous metals	C	the brightness of the welding arc can cause arc eyes
1.4	Penetration	D	the joining of two metals by a rivet
1.5	Eye hazard	E	consist mainly of iron
1.6	Basic symbols	F	the fusion of two or more metals
1.7	Distortion	G	the depth or distance that the groove weld goes into a joint
1.8	Nonferrous metals	H	from the intersection of the joint to the end of the weld
1.9	Respiratory hazard	I	found in weld drawings and describe the type of weld joint
1.10	Fillet-weld root	J	caused by the fumes that are released into the air when welding
		K	change in the original shape of a component

(10 × 1) **[10]**

QUESTION 2

2.1 Explain how the following parameters of shielded metal arc welding may affect the quality and appearance of the weld:

2.1.1 Electrode type and size

2.1.2 Amperage

2.1.3 Arc voltage

2.1.4 Travel speed

2.1.5 Arc length

(5 × 2) (10)

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2.2 Explain the mechanical process of shielded metal arc welding. (5)

2.3 Name TWO welding hazards in shielded metal arc welding. (2)

2.4 Draw a neat, labelled sketch of a standard fillet weld gauge. (3)

2.5 State FIVE methods of storing your personal protective equipment in an appropriate manner. (5)

[25]

QUESTION 3

3.1 Explain down-hand gas welding with reference to the following:

3.1.1 Leftward welding technique

3.1.2 Rightward welding technique

(2 × 4) (8)

3.2 Study the acetylene gas regulator shown in FIGURE 1 and answer the questions.

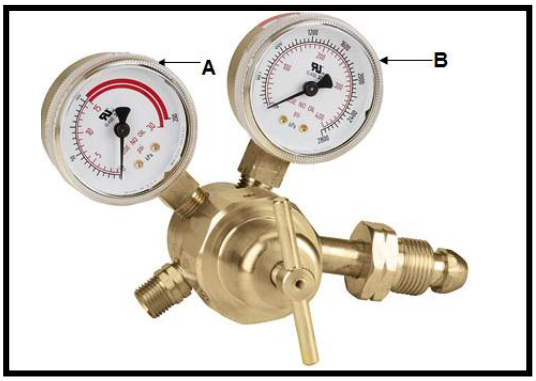

FIGURE 1

Explain ONE function of each of the gauges that are situated on the regulator in FIGURE 1 as indicated below:

3.2.1 Working pressure gauge A

3.2.2 Cylinder pressure gauge B

(2 × 1) (2)

[10]

QUESTION 4

4.1 Explain the starting-up procedure for oxyacetylene cutting. (8)

4.2 FIGURE 2 shows different types of personal protective equipment used during oxyacetylene cutting. Name the items (A-D) by writing only the answer next to the letter (A–D) in the ANSWER BOOK.

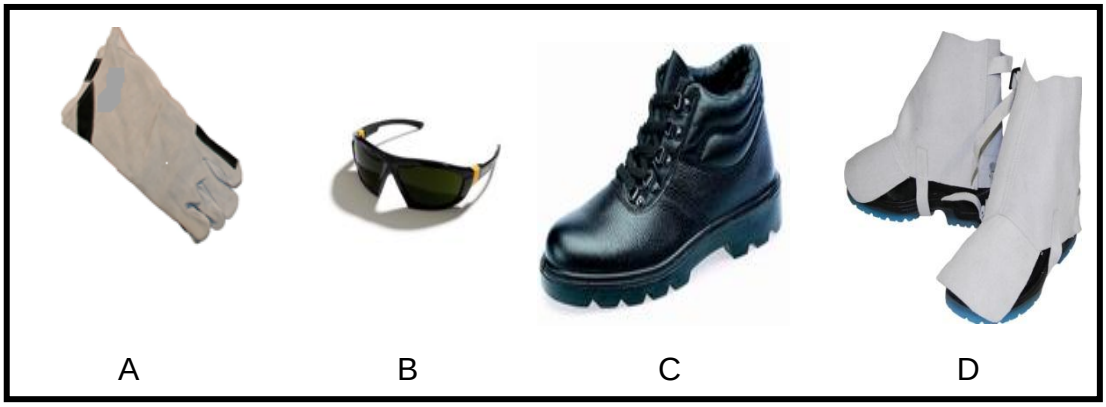

FIGURE 2

(4)

4.3 Explain the correct procedure for adjusting the flame on the oxyacetylene cutting equipment. (5)

4.4 State THREE advantages of the oxyacetylene process. (3)

4.5 Name FIVE basic components used in oxyacetylene cutting. (5)

[25]

QUESTION 5

5.1 The following table indicates terms that are related to gas metal arc welding. Complete the table by writing only the answer next to the question number (5.1.1–5.1.5) in the ANSWER BOOK.

COLUMN A	COLUMN B
Sigma	5.1.1
5.1.2	Metal inert gas
GSMA	5.1.3
5.1.4	Tungsten inert gas
FCAW	5.1.5

(5)

5.2 State FIVE safety precautions that a welder must adhere to when storing a gas metal arc welding machine. (5)

5.3 State ONE purpose of each of the following components of gas metal arc welding:

5.3.1 A cylinder

5.3.2 A wire spool

5.3.3 Cables and hoses

5.3.4 A welding gun

5.3.5 A gas flow regulator

(5 × 2) (10)
[20]

QUESTION 6

6.1 Make a neat, labelled sketch the destructive testing of a butt joint in gas brazing.

6.2 Name FIVE defects that can occur in gas brazing.

(2 × 5) **[10]**

TOTAL: 100

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