higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

ENGINEERING FUNDAMENTALS

NQF LEVEL 2

(6021002)

8 March 2018 (X-Paper)
09:00–12:00

This question paper consists of 7 pages.

NOT

Copyright reserved

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

1.1 Complete the TABLE below by using the words in the list. Write only the missing word or words next to the question number (1.1.1–1.1.5) in the ANSWER BOOK.

garage; grapes; print; crude oil; taxi

PRIMARY	SECONDARY	TERTIARY
1.1.1	Wine	Restaurant
Wood pulp	1.1.2	News agency
1.1.3	Refinery	1.1.4
Steel mill	Car plant	1.1.5

(5 × 1) (5)

1.2 Work ethics set the moral principles of employees. It has a fundamental impact on people's attitudes and ethics in the workplace.

1.2.1 Briefly explain work ethics. (2)

1.2.2 Give FOUR examples of good work ethics. (4)

1.2.3 Name FOUR important principles of good work ethics. (4)

1.3 List FIVE aspects that a company must have to ensure quality of work life. (5)

1.4 Every company has the right and power to impose standards of behaviour upon its employees.

List FIVE aspects that an institution should have in its code of conduct. (5)

1.5 List FIVE apprenticeships/learnerships within the mechanical engineering industry. (5)

[30]

QUESTION 2

2.1 Almost all sectors of the economy, including public service, have representative unions that engage with employees over issues affecting their work conditions.

Identify the unions that represent the people working in the following industries:

2.1.1 Metal industry

2.1.2 Mine industry

2.1.3 Chemical, energy, paper-printing industry

2.1.4 Education sector

2.1.5 Main labour organisation

(5 × 1) (5)

2.2 An unsafe act can lead to damage or injury to oneself or others.

Briefly explain FIVE examples of unsafe acts. (5)

2.3 Machine guards are fitted to prevent accidents that can happen when workers come close to dangerous moving parts.

2.3.1 Briefly explain THREE ways in which machine guards work. (6)

2.3.2 Name FOUR basic types of machine guards. (4)

[20]

QUESTION 3

3.1 Choose a description from COLUMN B that matches a term in COLUMN A. Write only the letter (A–L) next to the question number (3.1.1–3.1.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
3.1.1	Housekeeping	A	not containing any iron
3.1.2	Danger	B	all laws that have been passed
3.1.3	Demarcation	C	things that make a machine safe
3.1.4	Probation	D	anything that may cause injury or damage to a person or property
3.1.5	Ferrous metal	E	take steps to punish an employee who has done something wrong
3.1.6	Salary	F	period during which an employer can see if an employee is suitable
3.1.7	Legislation	G	pieces of metal that cover the blade or prevent people from getting hurt by the machine
3.1.8	Disciplinary action	H	metals containing iron
3.1.9	Machine guards	I	process of establishing borders or limits between areas
3.1.10	Safety devices	J	keeping things organised to work more effectively
		K	money received every month as payment for work done
		L	appointed to a higher position

(10 × 1) (10)

3.2 Name each of the following demarcation signs described:

3.2.1 Shows where to stop the machine in an emergency

3.2.2 Tells that one's life is at risk in an area

3.2.3 Shows that smoking is not allowed in an area

3.2.4 Shows which way to go to leave the building quickly

3.2.5 Shows that only people trained to deal with certain types of dangerous work are allowed into an area

(5 × 1) (5)

3.3 It is the duty of the employer to provide PPE for employees so that they can be safe while working.

Identify which type of PPE they can use to protect themselves in the following situations:

3.3.1 Working in a grinding area and protecting themselves from flying particles

3.3.2 Working in a noisy area

3.3.3 Cutting metal

3.3.4 Protecting the head from falling objects

3.3.5 Protecting their feet from hard objects

(5 × 1) (5)
[20]

QUESTION 4

4.1 List FIVE systems to reduce the spread of fires in a workshop. (5)

4.2 Explain the steps involved when using a fire extinguisher. (4)

4.3 What is *fire*? (1)
[10]

Copyright reserved

QUESTION 5

5.1 State FIVE injuries or incidents likely to occur in an engineering workplace. (5)

5.2 Give ONE term for each of the following descriptions. Write only the term next to the question number (5.2.1–5.2.5) in the ANSWER BOOK.

5.2.1 A person who is trained to give first aid

5.2.2 A person who has been trained to help people who are hurt, but is not a doctor or nurse

5.2.3 Something wrong with your body or mind which shows you have a particular illness

5.2.4 A special piece of material used to cover and protect a wound

5.2.5 When making sure that the person's injury does not get worse

(5 × 1) (5)
[10]

QUESTION 6

6.1 One of the health and safety representative's responsibilities is to inspect everything in the workplace linked to health and safety.

List FIVE things that must be inspected. (5)

6.2 Briefly explain the purpose of each of the following safety acts:

6.2.1 Occupational Health and Safety Act

6.2.2 Mine Health and Safety Act

(2 × 2) (4)

6.3 Define *pollution*. (1)
[10]

TOTAL: 100

Copyright reserved