higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

PROCESS CHEMISTRY
NQF LEVEL 2

(6050422)

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

This question paper consists of 5 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

Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'True' or 'False' next to the question number (1.1–1.5) in the ANSWER BOOK.

1.1 Nitrogen makes up 21% by volume of the atmosphere.

1.2 Platinum is an example of a precious metal.

1.3 Acetylene is an industrial gas that is produced through the Haber process.

1.4 Murkiness and cloudiness in water is called turbidity.

1.5 Lead glass has a high lead content.

(5 × 1) **[5]**

QUESTION 2

2.1 Give ONE term for each of the following descriptions. Write only the term next to the question number (2.1.1–2.1.5) in the ANSWER BOOK.

2.1.1 The process of passing electrical energy through a solution to form new products

2.1.2 Progress that meets the present needs without causing permanent damage to the environment

2.1.3 Chemicals that are used to manufacture agricultural products

2.1.4 A place where people should meet during an emergency

2.1.5 Neutral sub-atomic particles

(5 × 1) (5)

2.2 Write brief explanatory notes on a *smelting process*. (1 × 5) (5)

2.3 Define *fermentation*. (1 × 2) (2)

2.4 Inorganic chemicals do not bond with carbon.

2.4.1 State THREE uses of inorganic chemicals in the chemical industry. (3)

2.4.2 List FOUR examples of inorganic chemicals. (4)

[19[

QUESTION 3

3.1 List FIVE sources of water. (5)

3.2 List FOUR methods that are used to disinfect water. (4)

3.3 List FOUR diseases that are transmitted though water. (4)

3.4 Briefly explain the following:

3.4.1 Activated sludge process (4)

3.4.2 Polluters must pay principle (2)

3.5 Describe the operation of a strong-acid cation, strong-base anion demineralisation process. (6)

3.6 Filtration is one of the methods used to remove suspended solids from water.

3.6.1 Define *filtration process*.

3.6.2 Briefly explain how sand filters are cleaned.

(2 × 2) (4)

[29]

QUESTION 4

4.1 Nitrogen is produced industrially through fractional distillation of air.

4.1.1 List THREE industrial uses of nitrogen. (3)

4.1.2 Draw a process flow diagram to illustrate the fractional distillation of air. (1 × 9) (9)

4.2 Write a brief procedure for the filling of a gas cylinder. (1 × 4) (4)

4.3 Name TWO industrial uses of oxygen. (2)

[18]

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QUESTION 5

5.1 List FOUR possible faults that can occur when glass is produced. (4)

5.2 State THREE properties of commercial glass. (3)

5.3 Write the common names of the following compounds:

5.3.1 Calcium carbonate

5.3.2 Sodium sulphate

5.3.3 Silicon dioxide

5.3.4 Calcium oxide

(4 × 1) (4)

5.4 List THREE types of colourants and the colour they impart (show) in glass.

(3 × 2) (6)

5.5 What is cullet? (2)

[19]

QUESTION 6

6.1 List FOUR types of personal protective equipment. (4)

6.2 Name FOUR types of fire extinguishers. (4)

6.3 What is storm water? (1 × 2) (2)

[10]

TOTAL: 100

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