

Name: _____
 Index No. _____
 Candidate's Signature _____
 2528/2014
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 ENVIRONMENTAL ANALYTICAL TECHNIQUES
 AND LABORATORY MANAGEMENT
 Oct/Nov 2013
 Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY
MODULE II

ENVIRONMENTAL ANALYTICAL TECHNIQUES
 AND LABORATORY MANAGEMENT
 3 hours

INSTRUCTIONS TO CANDIDATES

Write your name and index number within spaces provided above.
 Signify with the date of the examination in the spaces provided above.
 You should have a copy of your own scientific calculator for this examination.
 This paper consists of TWO sections, A and B.
 You are to write in section A, write 4 marks with each question in Section B carries 20 marks.
 Answer all the questions in Section A and any **THREE** questions from Section B in the spaces provided in the question paper.
 Examiners mark the answers in the question paper indicated.
 Candidates should answer the question in English.

For Examiner's Use Only

SECTION A											
Question	1	2	3	4	5	6	7	8	9	10	Total
Candidate's score											

SECTION B						
Question	11	12	13	14	15	Total
Candidate's score						
GRAND TOTAL						

This paper consists of 16 printed pages.
 Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A (10 marks)

Answer ALL the questions in this section in the space provided.

Name: _____

4. Calculate the concentration of sulphuric acid which is 98% by mass and having density of 1.84 g/cm^3 . (4 marks)

5. Explain two precautions taken when using Soxhlet extraction process. (4 marks)

Identify any four characteristics of a good primary standard.

6. (a) State one disadvantage of thin layer chromatography as an analytical technique. (1 mark)

(b) List three ways of visualizing chromatogram in thin layer chromatography. (3 marks)

Identify four areas of control in an organization.

(4 marks)

RECORDS CONTROL
FINANCIAL CONTROL
PERSONNEL CONTROL
MATERIAL CONTROL

(a) Define a store.

(4 marks)

(b) Identify any two direct stores.

(4 marks)

Name four types of lead time.

(4 marks)

State any four benefits of good management in an organization.

(4 marks)

SECTION B: (60 marks)

Answer any THREE questions from this Section in the spaces provided after Question 15.

11. (a) A solution of 25 g of substance X in 100 ml of acetone solution is in equilibrium with a solution of 12 g of dry residue containing 100 g of X in 1000 ml. Calculate the mass of X extracted by shaking 100 ml of the acetone solution containing 10 g of X with (i) 100 ml of acetone, (ii) 200 ml of acetone, each of 50 ml ether collected.

(4 marks) (6 marks)

(b) Explain four methods of inducing crystallization.

(5 marks)

(c) Describe how solvent extraction is applied in desalination of sea.

(5 marks)

12. (a) (i) Explain the term ion exchange resin. (2 marks) (ii) Name two types of resins commonly used in chromatographic column. (5 marks) (b) State five applications of ion exchange resins in industry. (10 marks)

(10 marks)

(b) Explain five factors affecting column efficiency. (10 marks)

(10 marks)

13. (a) Explain five benefits of a social welfare to employees in a workplace. (10 marks)

(10 marks)

(b) Explain any five importance of training and development to staff in an organization. (10 marks)

(10 marks)

14. (a) Explain the behavioural school of thought as proposed by McGregor. (8 marks)

(8 marks)

(b) Explain any six causes of industrial disputes in organizations. (12 marks)

(12 marks)

(c) State any six ways of overcoming resistance to change in an organization. (6 marks)

(6 marks)

(b) Describe a typical procedure followed when filing documents. (14 marks)

(14 marks)

RECORDS CONTROL
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