

Name:

Index No:

2528/201  
2922/201

Candidate's Signature

EARTH SCIENCES AND ENVIRONMENT  
INFORMATION SYSTEMS

Date:

Dec/Nov., 2014  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY**  
**MODULE II**

**EARTH SCIENCES AND ENVIRONMENTAL INFORMATION SYSTEMS**

3 hours

**INSTRUCTIONS TO CANDIDATES**

Write your name and index number in the spaces provided above.

Sign and write the date of examination in the spaces provided above.

You should have a non-programmable scientific calculator for this examination.

This paper consists of TWO sections: A and B.

Answer ALL the questions in section A and any THREE questions from section B in the spaces provided in this question paper.

Each question in section A carries 4 marks, while each question in section B carries 20 marks. Candidates should answer the questions in English.

**SECTION A**

For Examiner's Use Only

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) (40 marks)

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

1. Define the following terms:

(a) solar system:

(1 mark)

(b) star:

(1 mark)

(c) galaxy:

(1 mark)

(d) planet:

(1 mark)

2. Explain two advantages of effective communication.

(4 marks)

3. Explain the difference between the two main types of remote sensing.

(a) Define Global Positioning System (GPS).

(1 mark)

(b) State the three major segments of GPS.

(3 marks)

5. (a) Define the term rock.

(1 mark)

SECTION B (60 marks)

Answer any THREE questions from this section in the spaces provided after question 15.

11. (a) Draw a well-labelled diagram of external and internal structure of the earth. (10 marks)
- (b) State the dominant natural processes in the five layers of the earth's crust. (4 marks)
- (c) State six characteristics of the mantle. (6 marks)
12. (a) Define the term remote sensing. (2 marks)
- (b) Explain six applications of remote sensing data to the environment. (18 marks)
13. (a) Define the term Geology. (2 marks)
- (b) Explain six principles used to determine age and to provide information about geological history and the time of geologic events. (18 marks)
14. (a) Explain the three Keplerian laws. (6 marks)
- (b) Table 1 shows the period, T, and the average distance, R, for planets.

Table 1

Planet	T, period, yr	Average distance, R
Mercury	0.241	0.39
Venus	0.615	0.79
Earth	1.00	1.00
Mars	1.88	1.52
Jupiter	11.86	5.20
Saturn	29.5	9.54
Uranus	84.7	19.18

- (i) Calculate the Keplerian ratio for each planet. (7 marks)
- (ii) Comment about the results in (i). (2 marks)
- (c) State five factors that influence weathering. (5 marks)
- (d) Explain five sources of waste. (10 marks)
- (e) Explain five reasons for water resource scarcity. (10 marks)

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(b) State three types of rock.

(3 marks)

6 Explain the difference between a seismic graph and a seismogram.

(4 marks)

7 Explain the difference between a wet and a dry suit.

(4 marks)

8 Explain any two effects of human activity on lakes.

(4 marks)

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9. (a) Define a tide.

(1 mark)

(b) Describe the following using a diagram

(i) crest.

(1 mark)

(ii) a trough.

(1 mark)

(iii) wave length.

(1 mark)

10. List four negative impacts of limestone mining.

(4 marks)

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Turn over