

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE**

ENSC 202: ENERGY AND ENVIRONMENT

STREAMS: BSC (ENSC) Y2S1

TIME: 2 HOURS

DAY/DATE: TUESDAY 05/12/2017

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS:

- **ANSWER ALL QUESTIONS IN SECTION A**
- **ANSWER ONLY TWO (2) QUESTIONS IN SECTION B**
- **DO NOT WRITE ANYTHING ON THE QUESTION PAPER**

SECTION A (30 MARKS)

1. Define the following terms [4 marks]
 - (a) Energy efficiency
 - (b) Proven energy reserves
 - (c) Joule
 - (d) Thermal electricity
2. Differentiate between the following terminologies [4 marks]
 - (a) Work and power
 - (b) Primary and secondary energy
 - (c) Conventional and non-conventional energy sources
 - (d) Control rods and fuel rods
3.
 - (a) Outline how sustainable energy future can be achieved. [4 marks]
 - (b) Compare the use of energy resources by developed and developing countries. [6 marks]
4.
 - (a) The worlds rate of energy consumption is 13.4 Terawatts. How many extra joules of energy does the world consume in one year? [2 marks]

- (b) An electrical appliance whose power rating is 4 Kilowatts was left on for 2 hours. Calculate the amount of energy it consumed in:
- (i) Kilo joules [2 marks]
 - (ii) Mega joules [2 marks]
 - (iii) Calculate the amount of money paid for electricity if the cost is kshs. 30 per kilowatt hour (KWh) [4 marks]
5. Explain why nuclear energy options is unpopular in many countries. [2 marks]

SECTION B (40 MARKS)

6. (a) Give advantages and disadvantages of the oil glut of the 1980s. [8 marks]
- (b) Explain how biogas is produced and give reasons why biogas is superior over the sources of energy it is derived from. [12 marks]
7. Discuss how you will promote energy efficiency and conservation in the transport sector. [20 marks]
8. Explain the process of electricity generation from solar energy. [20 marks]
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