



**JARAMOGI OGINGA ODONGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

SCHOOL OF ENGINEERING AND TECHNOLOGY

**UNIVERSITY EXAMINATIONS FOR THE DEGREE IN SCIENCE IN
RENEWABLE ENERGY TECHNOLOGY AND MANAGMENT**

FIRST YEAR RESIT EXAMINATIONS 2020/21 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: TET 3122

COURSE TITLE: Energy and Environment

EXAM VENUE: STREAM: BSc REN TECH & MGT

DATE: ../11/2020 EXAM SESSION:

DURATION: 2 HOURS

Instructions

- 1. Answer question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION ONE (COMPULSORY)

- a. Explain the following terms:
 - i. Energy and environment (2 marks)
 - ii. Energy conservation (2 marks)
 - iii. Sustainable energy (2 marks)
- b. The following Renewable energy sources could have severe environmental effects: discuss
 - i. Hydropower (3 marks)
 - ii. Geothermal (3 marks)
 - iii. Biomass (2 marks)
- c. State and explain the three major mitigation of energy issues as addressed by use of sustainable practices (6 marks)
- d. What is an oil spill? Explain the environmental effects of oil spill (6 marks)
- e. Climate change is a major environmental issue with energy usage. Explain this statement (4 marks)

QUESTION TWO

- a. The government of Kenya, through the Ministry of Petroleum and Natural Resources is exploring petroleum reserves in Turkana County. Describe the environmental issues with using petroleum as source of energy in Kenya (10 marks)
- b. Ministry of Energy (MOE) is about to start mining coal as a source of energy in Kitui County. State and explain the environmental effects of mining coal in the county and Kenya at large (10 marks)

QUESTION THREE

- a. National Environment and Management Authority (NEMA), is developing various technologies and strategies to reduce air pollution from industries such as Athi River mining. State and explain the technologies and strategies to be developed to reduce air pollution (10 marks)
- b. Explain the term air pollution as used in energy and environment. State the causes and effects of air pollution (10 marks)

QUESTION FOUR

- a. Cleanup and recovery from oil spill is difficult and depends upon many factors. State and explain three methods used for cleaning up oil spill. (5 marks)
- b. Lake Turkana Wind power Limited has set up wind power generation plant in the Northern part of Kenya. Discuss the environmental effects of the wind power plant in this region. (15 marks)

QUESTION FIVE

- a. Energy is a prime mover of economic growth. Explain this statement (3 marks)
- b. What are the environmental impacts of greenhouse gas pollutants, giving at least three examples of these gas pollutants (6 marks)
- c. What is “Acid rain” and how is acid rain formed? (4 marks)
- d. State and explain at least three non-renewable sources of energy. (7 marks)