

UGANDA MARTYRS UNIVERSITY, NKOZI CAMPUS

**FACULTY OF BUSINESS ADMINISTRATION AND
MANAGEMENT**

DEPARTMENT OF ECONOMICS

**COURSE: RENEWABLE ENERGY TECHNOLOGIES AND
DECENTRALIZATION OF ENERGY PRODUCTION**

CODE: ENM 1107

FINAL EXAMINATION

Time allowed: 3HOURS

Date: July 18th, 2022

Instructions to candidates:

Read the following before answering the questions

- 1) **This is final individual assessment.**
 - 2) Show all workings.
 - 3) Answer **ANY FOUR** Questions
 - 4) You can type or scan your work
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Question One

- a) Distinguish between Climate change and global warming giving an example in each case [5 Marks]
- b) "Climate change has been linked to both natural and human factors". Discuss the statement with relevant examples [20 Marks]

Question Two

"The concept of renewable energy has dominated energy innovations in the 21st Century since it is believed to offer tangible solutions to environment protection and conservation by ensuring more green surfaces and reduction in destruction"

- a) Define the term renewable energy
- b) State the various sources of renewable energy that can be exploited
- c) What are the known benefits of renewable energy over other forms of energy

Question Three

- a) Discuss the process by which energy from the Sun is distributed around Earth? [5 Marks]
- b) How does solar energy convert heat energy into electrical energy? [5 Marks]
- c) Explain the process of active solar home heating? [5 Marks]
- d) Evaluate the usefulness of solar heating on the basis of heating requirements for a building. [10 Marks]

Question Four

- a) Explain the principle of working of PV cells [5 Marks]
- b) How does the tilt angle affect the performance of PV module [6 Marks]
- c) What are basic differences between conversional and thin film PV technology? [9 marks]
- d) How do weather parameters affect PV system? [5 marks]

Question Five

- a) How do thermal power plants attain their energy? [5 marks]
- b) Why would you need insulation around your storage system? [5 marks]

- c) Account for the fixing of aluminum foil on the water heater? [5 marks]
- d) Why would water be heated with the Sun? [5 marks]
- e) What kind of weather conditions would be needed for a solar water heater? [5 marks]

Question Six

- a) Define biomass/bioenergy and discuss the main forms of biomass [7marks]
- b) What processes and technologies are available in the biomass arena? [10 marks]
- c) What is the role of biomass/bioenergy in Uganda? [8 marks]

THE END

GOOD LUCK