



25

KIBABII UNIVERSITY

2017/2018 ACADEMIC YEAR

FIRST YEAR FIRST SEMESTER

MAIN EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN RENEWABLE ENERGY AND
BIOFUELS TECHNOLOGY

COURSE CODE: IET 111

COURSE TITLE: Survey of Energy Sources

DATE: 18TH JANUARY 2018

TIME: 9 – 11AM

INSTRUCTIONS TO CANDIDATES

Answer question ONE and any other two questions

This paper consists of 2 printed pages. Please Turn over

Question One

- (a) Briefly describe the energy services commonly encountered in the following sectors
- (i) The built environment [4 Marks]
 - (ii) Agriculture [4 Marks]
 - (iii) Industry [4 Marks]
 - (iv) Transport [4 Marks]
- (b) State the law of conservation of energy [2 Marks]
- (c) Briefly explain the following forms of energy
- (i) Biomass [2 Marks]
 - (ii) Fossil fuel [2 Marks]
 - (iii) Wind energy [2 Marks]
 - (iv) Ocean thermal energy [2 Marks]
 - (v) Wave energy [2 Marks]
 - (vi) Nuclear Energy [2 Marks]

Question Two

- (a) Define “Power Plant” [2 Marks]
- (b) Briefly explain why electricity is the preferred form of energy [2 Marks]
- (c) With the aid of sketches, describe how electricity is generated in the following power plants
- (i) Coal Power Plant [4 Marks]
 - (ii) Nuclear Power Plant [4 Marks]
 - (iii) Diesel Power Plant [4 Marks]
 - (iv) Wind Turbine Power Plant [4 Marks]

Question Three

- (a) Define Renewable Energy [2 Marks]
- (b) State any **Seven** renewable energy sources [7 Marks]
- (c) (i) State which types of renewable energy are solar in origin [3 Marks]
- (ii) Describe how the energy sources stated in (i) are derived from the sun [8 Marks]

Question Four

Explain how the availability of energy affects the provision of the following services in rural areas

- (i) Education [4 Marks]
- (ii) Health [4 Marks]
- (iii) Water [4 Marks]
- (iv) Transport [4 Marks]
- (v) Agriculture [4 Marks]

Question Five

Explain how the usage of energy resources in industry leads to environmental damages by polluting the atmosphere. [20 Marks]