



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

SET 533: NATIONAL ENERGY PLANNING AND POLICY

DATE: MONDAY, 5TH DECEMBER 2011

TIME: 8.00 A.M. – 10.00 A.M.

INSTRUCTIONS: Answer Question 1 (Compulsory) and any other two questions

Question 1

- (1) What are the main differences between Econometric models, simulations models and Analogue methods in Energy planning? (4 marks)
- (2) Differentiate between the following investment terms: Can-do investments and Must-do investments (2 marks)
- (3) Briefly list and explain the four main methods of investment calculations (2 marks)
- (4) Indicate and briefly explain two of the three main methods for the technical evaluation of oil resources and reserves (2 marks)
- (5) Differentiate between Oil reserves and Oil resources (2marks)
- (6) You are given the following energy information from a domestic household energy user for the month of April, 2011. Determine his monthly electricity bill. further determine how flexible is he with regard to choice of LPG gas or Electricity. (7 marks)
 - Electricity consumption is 120 kWh
 - Fixed Charge is KES 130
 - Fuel cost charge is 100 cents
 - Forex adjustment per unit 140 cents
 - Inflation adjustment per unit 18%
 - REP levy is 4.5%
 - ERC levy 4 cents/kWh
 - VAT 16%
 - Use a 13 Kilogram cylinder of LPG gas per month costing KES 3,600
- (7) differentiate between Direct price elasticity coefficient and Cross-elasticity coefficient (3 marks)

- (8) Explain the term energy economy (2 marks)
- (9) Different methods are used to arrive at the data used as input in the evaluation process of petroleum resources. List and explain these methods, (6 marks)

Question 2

- (1) Using a McKelvey diagram distinguish between resources and reserves (2 marks)
- (2) What is integrated energy planning and how can it be used to improve Kenya's energy planning and policy process (4 marks)
- (3) List and briefly explain the 5 principal regulatory and policy tools or frameworks used to govern the Energy sector in Kenya (5 marks)
- (4) List and briefly explain 3 other legislations that impact on the energy sector (3 marks)
- (5) In evaluation of the oil resource a technical feasibility and later on an assessment of the current economic conditions is undertaken. What does the term current economic condition consist of (4 marks)
- (6) List and explain the 2 types of Energy balance (2 marks)

Question 3

- (1) List and differentiate between the two forms of Energy investments (4 marks)
- (2) Briefly indicate 3 policy measures that the Government can undertake to increase accessibility and affordability of renewable energy sources (3 marks)
- (3) Using a flow chart depict the process of energy planning as a phase in integrated energy planning (3 marks)
- (4) Differentiate between Econometric and Simulation (Analytical) Models in energy planning (5)
- (5) In classification of energy resources economists and geologists tend to have different views. List and briefly explain these two approaches to viewing of resources as held by economists on one hand and geologists on the other (2 marks)
- (6) At what point does system analysis play a role in integrated energy planning, and what role is this? (2 marks)
- (7) Which energy planning evaluation method would be most suitable for assessing the findings indicate a fuel switch change by domestic consumers in an informal settlement in Kenya (1 mark)

Question 4

1. Explain to Mary the difference between Final energy and useful energy using real life examples (2 marks)
2. To what purpose is cross-elasticity coefficient and direct-elasticity coefficient important in energy planning (3 marks)
3. Using a flow chart explain to the Cabinet Secretary Dr. Ako, the process and phases of Integrated Energy planning (4 marks)
4. Distinguish between the different forms of system analysis that being between Cognitive and decision making system analysis (2 marks)
5. List the approaches or methods used in evaluation of energy planning methods. Which method would be most appropriate to use when evaluating the results obtained from energy planning models like LEAP (4 marks)
6. List 2 main factors necessary to estimate the future technical potential of Biomass energy plantations (1 marks)
7. Indicate and briefly explain the four mains types of geothermal energy resources (4 marks)
