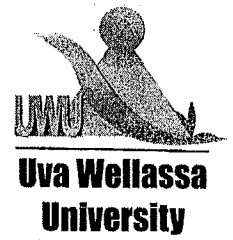




Uva Wellassa University
Faculty of Animal Science & Export Agriculture
BSc in Tea Technology & Value Addition
End Semester Examination September /October 2013
Year III Semester II



Energy Management in Tea Processing (TEA 334 -3)

Instructions

Answer **all** the questions

No. of questions : Five (05)

No. of pages : Two (02)

Time : 03 hours

Total marks allocated : 100%

Index No:

Question 01

“Energy auditing “is one of the key elements that have to be followed while implementing an energy management program.

- a. What are the two types of energy audits that are described in energy management standards?
(06 marks)
- b. Describe these two taking a tea factory as an example. (14 marks)

Question 02

Thermal energy sources like coal, furnace oil, diesel, paddy husk, naptha etc. are used to generate more than 70% of national electricity requirement and use of thermal energy sources are increasing day by day.

- c. What is the measuring unit of electrical energy? (02 marks)
- d. What is the measuring unit of electricity demand? (02 marks)
- e. “The electricity consumption in withering troughs can be reduced by improving the quality of eaves”. Discuss the above statement. (08 marks)
- f. Write down three energy conservation measures that can be implemented in withering process in addition to the above. (08 marks)

Question 03

Sustainable energy development is identified in the “Mahinda Chinthanaya Vision for the Future” – the national action plan of the Government. It describes energy conservation as

“With the long-term objective of reducing 8.7 percent of energy consumption by the year 2020, under the power conservation and management programme, energy conservation activities will be implemented at household as well as industrial and commercial levels”

“A comprehensive mechanism to deliver energy efficiency services will be developed to curtail energy waste in industrial and commercial sectors”

In line with the above directives, a regulation has been published on 2011 for appointing energy managers and energy auditors.

- a. What are the duties of an energy manager? (05 marks)
- b. What are the qualifications required to become an accredited energy auditor? (05 marks)
- c. What are the advantages of having a systematic energy management program for a tea factory compared to implementing energy conservation measures in ad-hoc basis? (10 marks)

Question 04

Firewood is an alternative thermal energy source to the fossil fuel. Use of firewood is becoming popular in tea manufacturing process rather than use of diesel or furnace oil.

- g. Describe three advantages of the use of firewood and justify your answers giving examples. (10 marks)
- h. Describe three disadvantages of the use of firewood and justify your answers giving examples. (10 marks)

Question 05

“Most of the tea factories are located in higher elevation in complex terrains”. What would be the reason for this initiative? Explain this statement assuming you are an energy manager in one of these factories. (20 marks)