

**The Open University of Sri Lanka**  
**Faculty of Engineering Technology**  
**Department of Electrical and Computer Engineering**

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Study Programme : Bachelor of Technology Honours  
: Bachelor of Software Engineering Honours  
Name of the Examination : Final Examination  
**Course Code and Title : EEX5280 / EEI5280 Creative Design**  
**Academic Year : 2021 - 2022**  
**Date : 9 February 2023**  
Time : 1330 -1630hrs  
Duration : **3 hours**

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**General Instructions**

1. Read all instructions carefully before answering the questions.
  2. Answers should be written in answer book provided. Answer for each question should commence from a new page.
  3. This question paper consists of **Four (4)** questions in **Three (03)** pages.
  4. Answer all questions.
  5. This is a Closed Book Test **(CBT)**.
  6. Answers should be in clear handwriting.
  7. Do not use red colour pen.
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Read the following case study carefully. Some questions in this paper are based on this case study.

### **Case Study on Solving the problem of Food Wastage**

Generally, lots of food goes to waste in middle to high income households, in hotels and organised events. One study has found that the average American wastes enough food each month to feed another person for 19 days. According to the United Nations, about a third of the food the world produces every year—1.3 billion tons—is lost during production or thrown away by consumers. Food waste can happen in many forms. For example, vegetables getting dried in refrigerators, unused milk going bad, preparing more food than necessary, children throwing away food etc. Another major cause of food wastage happens in hotel buffets where consumers serve much more than they can eat, and hotels preparing more food than necessary to avoid customer dissatisfaction. Lots of food goes to waste bin when corporate and other events are organised. On the other hand, people who are living below the level of poverty often find it difficult to feed themselves. In poorer communities' malnutrition among children is rampant.

A non-governmental organization called "Hunger Heroes" (Hunroe) has understood that wasting food is a problem too big to ignore any further. Wasted food means squandered resources, lost money, and ultimately hungry people. An expert has suggested that Hunroe follow the "Design Thinking Process" to find a solution to this problem.

You have been requested to assist Hunroe in designing a solution to this problem.

#### **Question 1**

- (a) What is design thinking?  
(04 Marks)
- (b) What are the advantages of using design thinking for problem solving as opposed to using traditional problem-solving methods?  
(04 Marks)
- (c) List and briefly describe the major steps in the design thinking methodology for solving problems.  
(12 Marks)
- (d) "Design thinking process is not suitable for solving some types of problems".  
Do you agree with the above statement? Give reasons and suitable examples to illustrate your answer.  
(05 Marks)

**Question 2**

Use the Case Study on 'Solving the problem of Food Wastage' to answer the following questions.

- (a) Apply the "5 Why" method to identify the actual problem that Hunroe need to solve? (10 Marks)
- (b) Identify the major stakeholders of the solution to the problem identified in Question 2 part (a) and the role of each stakeholder. (05 Marks)
- (c) Prepare an action plan that includes specific activities that Hunroe should undertake to ensure that a user-centric solution is designed and identify different tools that are available for this task. (10 Marks)

**Question 3**

- (a) Describe how Hunroe team can identify different solutions to the problem identified and how to select a particular solution for implementation. (05 Marks)
- (b) Identify and describe 3 possible solutions for each of the following situations given in the case study:
  - (i) Vegetables, milk and meat going bad in refrigerators
  - (ii) Consumers wasting food in hotel buffets
  - (iii) Food going to waste in Corporate events
  - (iv) Identify people who need food on regular basis (4 x 3 = 12 Marks)
- (c) Select one solution for implementation for each of the situations. Justify your selection. (4 x 2 = 08 Marks)

**Question 4**

- (a) Explain what steps Hunroe should take to decide whether the solutions identified in Question 3(c) are viable solutions? (05 Marks)
- (b) List 4 challenges that Hunroe might face in implementing a solution to the identified problem? (05 Marks)
- (c) What are the ethical, legal, societal, and environmental considerations that should be taken into account when designing and implementing a solution for the problem of food wastage. (10 Marks)
- (d) What are the implications for the environment, economy, and society in finding a solution to the problem of food wastage? (05 Marks)

----- END OF THE PAPER -----

