

THE OPEN UNIVERSITY OF SRI LANKA  
BACHELOR OF TECHNOLOGY/ SOFTWARE ENGINEERING  
LEVEL 05

00028



FINAL EXAMINATION – 2010

MPJ5233/MPJ5263 – TECHNOLOGY, SOCIETY & ENVIRONMENT

DURATION: FOUR HOURS (ESSAY TYPE PAPER)

OPEN BOOK EXAMINATION

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Date: 03<sup>rd</sup> March 2011

Time: 09.30 hr. - 13.30 hr. (4hrs)

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The questions are grouped in the following manner:

Part A : Q1 – Q4

Part B : Q5 – Q9

Part C : Q10 -Q11

Mark your Index Number and the Part you are answering on the answer book provided to you.

Please answer a total of six questions, choosing not more than three from any single part. Do not use more than 300 words to answer any question.

Please do not copy directly from a text. If you have to quote, please do so within inverted commas.

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**Part A**

1. "In September 2010 United Nations Secretary General introduced the target of universal energy access (energy for all) by 2030. This means the supply of energy to a basic minimum level to millions of people who do not have access. However, according to the Energy Outlook, 2009 most important fossil fuel based energy sources (oil and natural gas) will last only a few more decades. On top of that energy sector is one of the main contributors of green house gas emission and hence to climate change.

Under this reality of the depletion of fossil fuel based energy sources and global warming the target set by the United Nations can be unrealistic and unjustifiable unless a proper strategy is used." Discuss a justifiable strategy that can be adopted by the United Nations to achieve universal access target while accepting the above mentioned realities. (100 marks)

2. Write in your own words short notes on four of the six terms mentioned below with examples explain the term wherever possible (100 marks).
- Paradigm of Icarus
  - Technological fix
  - Legitimate material needs
  - Replaceable energy sources
  - Basic resources for production
  - Net Present Value in project evaluation
3. a). Discuss characteristics of low entropy and high entropy states the terms “quality of energy”, “order/chaos”, “information content” and “stability”. (30 marks)
- b). Assume a bus traveling from Colombo to Anuradhapura and all the seats are occupied by passengers. Explain why people seated in the bus tend to get down, walk randomly and mix with each other at a breakdown using your knowledge on entropy obtained by interpreting the second law of thermodynamics. (40 marks)
- c). Draw a graph of entropy change of a human being from birth to death. (30 marks)
4. “Discount rates, generally, is a term used by economists. However, the debate in 1980s on whether Sri Lanka needs coal power electricity generation made the term widely used beyond the circles of economists, discussed and contest. While the CEB was in favour of high discount rates the environment lobby argued in favour of low discount rates in this debate”. Why? Please discuss in detail. (100 marks)

### **Part B**

5. a). List out the biogeochemical cycles in forest ecosystem. ( 25 marks)
- b). Briefly discuss giving examples how biogeochemical cycles are subject to disturbance by human activities? (75 marks)
6. a). Solid waste management has always been a major problem in Sri Lanka, causing serious environmental degradation. Assume that municipal council is going to the implementation of a composting plant to prevent the numerous impacts associated with in proper solid waste management in Sri Lanka. Briefly discuss positive and negative impacts of the projects. (60 marks).

- b). Recommend mitigation measures to minimize the negative impacts while improving positive impacts. (40 marks)
7. a). Giving the examples describe the components of an aquatic ecosystem. (30 marks).  
b). Briefly discuss the consequences of species loss for the functioning of an aquatic ecosystem. (70 marks)
8. Write short notes on three of the following, ( 100 marks)
- a) Basic characteristics of visual composition
  - b) Initial environmental examination
  - c) Potential risk from mobile phones
  - d) Nitrogen and acidification of lakes
9. "When you change the visual environment, it becomes a social problem". Please comment on this statement. (100 Marks)

### **Part C**

10. There is an argument that technology is male biased. The fact that the car was invented long before the washing machine is taken as an example to prove the above statement. Are you in agreement or not? Please discuss. (100 marks)
11. Could you state as to why climate change is simply not a question of global warming? (100 marks)