THE OPEN UNIVERSITY OF SRI LANKA
Faculty of Engineering Technology
Department of Mathematics & Philosophy of Engineering

Bachelor of Technology Honors in Engineering / Bachelor of Software Engineering Honors / Bachelor of Industrial Studies

Final Examination (2021/2022)
MHJ4241: History of Technology
(*Essay Type, Open Book Examination*)

Date: 11ᵗʰ March 2023 (Saturday)   **Time: 13.30 hrs. – 17.30 hrs.**

Instructions:

- *Answer five (05) questions only.*
- *Number of pages in the paper is two (02).*
- *Please do not copy directly from the text. If you have to quote, do so in inverted commas.*

1) i. Explain the importance of studying the traditional technologies in a particular society. (40 marks)
ii. Sri Lanka, being an island that had supported a civilization more than 3000 years, possessed advance level of technologies in the ancient times. Discuss two possible reasons for declining such technologies at present. (60 marks)

2) i. Explain the factors which would have contributed to the steel manufacturing technologies in ancient Sri Lanka. (50 marks)
ii. Elaborate the functioning of the ancient iron smelting furnaces, discovered during the archaeological surveys at Samanalawewa area by Dr. Gill Juleff. (50 marks)

3) Village tanks were an important component of ancient irrigation system in Sri Lanka. Elaborate the following conditions associated with village tanks.
(a) The ecological conditions (50 marks)
(b) The social conditions (50 marks)

4) i. Highlight five legal reformations with regard to the irrigation, introduced during the British occupation in Sri Lanka. (40 marks)
ii. Discuss the implications of two such reformations, on the ancient irrigation practices in the island. (60 marks)

5) Write short notes, including the operation mechanism, on below water raising machines used in the ancient times in different parts of the world.
(a) Saqiya (50 marks)
(b) Noria (50 marks)

6) i. Explain briefly the contribution made by the following Indian Mathematicians.
   (a) Aryabhatta (25 marks)
   (b) Bhaskara (25 marks)
   ii. Discuss the contribution of Arabian Mathematicians in the development of mathematical knowledge in Europe. (50 marks)

7) Calculus occupies a very important place in today's mathematics. Discuss the contribution by the following to the subject of Calculus.
   (a) Gottfried Wilhelm Leibniz (50 marks)
   (b) Isaac Newton (50 marks)

8) i. Highlight four instances where Sri Lanka was maintaining close relationships with foreign countries, and the relevant historical sources. (50 marks)
   ii. Write short notes on the following ports prevalent in Sri Lanka in ancient times.
   (a) Godavaya at Walave ganga river basin (25 marks)
   (b) Manthai at Malvathu oya river basin (25 marks)

End