

The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Mathematics and Philosophy of
Engineering



0055

Study Programmes	: Bachelor of Science Honours in Engineering : Bachelor of Industrial Studies Honours
Name of the Examination	: Final Examination
Course Codes and Title	: MHJ5343: Nature of Science
Academic Year	: 2024/25
Date	: 18 th February 2026
Time	: 13:30-17:30h
Duration	: 04 hours

General instructions

1. This is an Essay type, Open Book Examination.
 2. Answer ALL six questions.
 3. DO NOT copy directly from a text. If you have to quote, do so within inverted commas.
 4. Answer for each question should start from a new page.
 5. Answers should be in clear handwriting.
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1. Inductivism and deductivism are two classical approaches used to explain how scientific knowledge is developed. Explain inductivism and deductivism, apply each approach to a scientific example, and analyze their main strengths and limitations in scientific practice. (100 marks)
2. Positivism emerged as a philosophical view that emphasized observation, measurement, and empirical verification in science. Describe positivism and logical positivism, apply those ideas to assess a scientific claim, and analyze the key differences between these two approaches. (100 marks)
3. Karl Popper introduced falsification as an alternative to verification in scientific reasoning. Explain falsification as formulated by Popper, apply the idea of falsification to a scientific theory of your choice, and analyze how falsification addresses the limits of scientific methods. (100 marks)
4. Thomas Kuhn proposed that science develops through periods of normal science and scientific revolutions. Explain Kuhn's idea of paradigms, apply it to a historical scientific case, and analyze how scientific revolutions change accepted scientific knowledge. (100 marks)
5. Paul Feyerabend criticized the idea that science follows a single universal method. Explain Feyerabend's anarchistic theory, apply it to a scientific development, and analyze how this view questions accepted scientific methodologies. (100 marks)
6. Vandana Shiva has critically examined modern science from social, cultural, and ecological perspectives. Summarize Vandana Shiva's critique, apply her ideas to a contemporary scientific issue, and analyze how cultural and social factors shape scientific practices. (100 marks)