



UNIVERSITY OF PERADENIYA
CENTRE FOR DISTANCE AND CONTINUING EDUCATION



Bachelor of Arts (External – New Syllabus)
300 Level - 2025

SUPE 309 – Philosophy of Science

Time allowed: 2 hours

Marks will be deducted for illegible handwriting

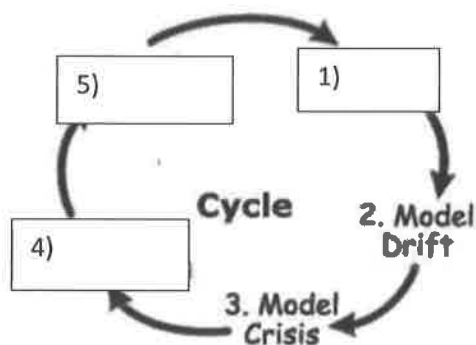
Answer all questions

Choose the most appropriate answer for question number 1-20 and underline.

1. What is science?
 - a) A set of conditions and beliefs that never change
 - b) A systematic approach followed to study the natural world
 - c) A collection of opinions accepted by society
 - d) A method used to verify personal beliefs
2. Which of the following is not a characteristic of science?
 - a) The advancement of science involves the interaction of the scientific community
 - b) Scientific ideas are accepted based on the evidence associated with them
 - c) Science can study phenomena outside the natural world
 - d) Scientific knowledge is reliable
3. The rediscovery of the supposedly extinct Coelacanth fish in 1938 indicates:
 - a) That scientific knowledge is subject to change because it depends on evidence
 - b) That scientific knowledge is reliable
 - c) That scientific ideas are determined by popular opinion
 - d) That many research activities are carried out jointly
4. The scientific community includes:
 - a) Only professional scientists who work in laboratories and conduct experiments using advanced equipment
 - b) The community of people and organizations that generate scientific ideas, test them, publish scientific journals, etc.
 - c) Only individuals who have received prestigious scientific awards such as the Nobel Prize and have made outstanding discoveries that contribute to scientific understanding.
 - d) Only university professors and lecturers who are engaged in teaching scientific subjects and publish research papers in recognized scientific journals
5. Which of the following is an example of scientific behavior:
 - a) Accepting information without considering its accuracy or source.
 - b) Drawing conclusions based on personal beliefs.
 - c) Observing a situation, formulating a hypothesis, conducting experiments, analyzing data, and drawing conclusions based on evidence.
 - d) Ignoring contradictory evidence and maintaining the original idea without change.

6. Examples of ancient Greek philosophers are:
- Plato, Aristotle, and Socrates
 - Immanuel Kant, Plato, and Friedrich Nietzsche
 - Aristotle, Plato, and Lev Vygotsky
 - Aristotle, Charles Darwin, and Isaac Newton
7. Who proposed that the primary elements are earth, water, air, and fire?
- Socrates
 - Plato
 - Aristotle
 - Isaac Newton
8. Who was the first to create a representation of the universe?
- Plato
 - Aristotle
 - Anaximander
 - Ptolemy
9. The inventions of the wheelbarrow, paper and printing, gunpowder, and the compass were made in:
- Ancient India
 - Ancient China
 - Ancient Greece
 - The Mesopotamian civilization
10. The philosophers who were important for the advancement of science during the Renaissance were:
- Isaac Newton, Aristotle, and Plato
 - Isaac Newton, Albert Einstein, and Charles Darwin
 - Nicolaus Copernicus, Galileo Galilei, and Johannes Kepler
 - Aristotle, Plato, and Socrates
11. According to Karl Popper's view, science is based on:
- Deductive reasoning
 - Inductive reasoning
 - Neither deductive nor inductive reasoning
 - Scientific revolution

A scientific revolution occurs when scientists encounter anomalies that cannot be explained by the universally accepted paradigm. Answer questions 12 to 15 based on the above definition.



12. Based on the given definition, who explained the process of a scientific revolution?
- a) Karl Popper
 - b) Isaac Newton
 - c) Nicolaus Copernicus
 - d) Thomas Kuhn
13. Based on the above definition, what is represented by Box 01?
- a) Hypothesis
 - b) Normal science
 - c) Anomalies
 - d) Problem definition
14. Based on the above definition, what is represented by Box 04?
- a) Hypothesis
 - b) Experimentation
 - c) Anomalies
 - d) Revolution
15. Based on the above definition, what is represented by Box 05?
- a) Hypothesis
 - b) Paradigm shift
 - c) Anomalies
 - d) Experimentation
16. The scientific method is:
- a) A process used to present personal opinions as definitive truths
 - b) A method that helps minimize personal or societal unjust influences
 - c) A series of random experiments conducted without clear objectives
 - d) A method used only by professional scientists in laboratories
17. Hypothesis,
- a) Is the first step in the scientific method
 - b) Is tested through experiments
 - c) Does not need to be tested
 - d) Is a well-tested scientific law
18. "All cars are vehicles. This is a car. Therefore, it is a vehicle." This is an example of:
- a) Inductive reasoning
 - b) Deductive reasoning
 - c) Neither deductive reasoning nor inductive reasoning
 - d) Best explanation
19. Which of the following includes three steps of the scientific method?
- a) Observation, creation, prediction
 - b) Questioning, belief, hypothesis
 - c) Hypothesis, questioning, conclusion
 - d) Experimentation, prediction, belief

20. Which of the following is not a change in modern science?

- a) Publication and peer review
- b) Specialization and collaboration
- c) Strict control
- d) Regulation

(1.5 x 20 = 30 marks)

21. What is philosophy? Explain briefly.

(05 marks)

22. Discuss how science has developed into its present form throughout human history.

(15 marks)
