



**RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES**

**B.Sc. (General) Degree in Information Communication Technology
First Year-Semester II Examination – February/March 2019**

IDC1201 – Philosophy of Science

Time: Two hours (02) hours

Answer ALL questions.

1. The standard representation of an argument is shown below:

P1

P2

P3

•
•
•

C

a) What are the standard names of the components P1, P2, P3, etc. and C, in this representation?

(05 marks)

b) Explain the meaning of each term you provided above and their relationship to each other.

(15 marks)

2. Perform the following for each argument (a and b) given below:

Arrange the argument into the standard representation (as shown in question 01).
Conclude if each argument is inductive or deductive, and explain how you arrived at your conclusion.

- a) "Dumbbell training is inherently safe. I've never observed a torn muscle or any other serious injury resulting from the proper use of dumbbells." (Bill Philips and Michael D'Orso, *Body for Life* (New York: Harper Collins, 1999), 123.)

(10 marks)

- b) Given the view that species evolve into one another, then members of one species must somehow give rise to members of another species. It follows that members of the second species must somehow derive as variants of members of the first. (Stuart A. Kauffman, *The Origins of Order: Self-Organization and Selection in Evolution* (Oxford: Oxford University Press, 1993), 6.)

(10 marks)

3. a) Explain the following structures of arguments (provide their standard forms),

- i) Modus Tollens or the denying by denying the consequent (05 marks)
- ii) Converse Error or the fallacy of affirming the consequent (05 marks)

b) The following are two early hypotheses about vision (seeing):

- **Hypothesis 1 (Active Eye/ Extramission Theory of Vision):** Plato, wrote in the fourth century B.C. that light emanated from the eye, seizing objects with its rays. That is, light is sent out from the eye to outside objects.
- **Hypothesis 2 (Intromission Theory of Vision):** Aristotle advocated for a theory of intromission by which the eye received rays rather than directed them outward. That is, light is received from outside objects.

If a person's eye is tightly closed he/she will not be able to see (test 1). Also, if one is inside a room that is completely dark the person cannot see even if the eyes are fully open (test 2). Demonstrate (by arranging into Modus Tollens or Converse Error form) how the outcome of each test (test 1 and test 2) can be used to support or not support each hypothesis.

(10 marks)

4. a) What is an essential condition for a hypothesis to be a scientific hypothesis?

(04 marks)

b) List and explain the key components of a scientific explanation?

(08 marks)

c) What is the deductive nomological (DN) method? What are the uses of the DN method in science?

(08 marks)

5. Is science a philosophy?

State your position (Yes, I consider science to be philosophy, or No, I do not consider science to be philosophy) and formulate an argument based on your understanding of what science and philosophy are. Please note that you will not be evaluated on the choice you made but rather on the quality of the argument.

(20 marks)

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