



# MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF SOCIAL SCIENCES

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF ARTS

APH 101: INTRODUCTION TO LOGIC

DATE: 29/4/2019

TIME: 2.00-4.00 PM

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## INSTRUCTIONS

Answer Question One and any other Two Questions

### QUESTION ONE (30 MARKS) (COMPULSORY)

- a) Explain the following in detail; (18 marks)
- Valid deductive argument
  - Invalid deductive argument.
  - Sound deductive argument.
  - Unsound deductive argument.
  - Cogent argument.
  - Uncogent argument.
- b) differentiate the following arguments forms (12 marks)
- Modus ponens and Modus tollens
  - Fallacy of denying the antecedent and Fallacy of affirming the consequent

### QUESTION TWO (20 MARKS)

- a) Explain the rationale of the venn diagrams (4 marks)
- b) Construct venn diagrams for the four categorical statements. (4 marks)

c) Using Venn diagrams determine whether the following arguments are valid or invalid (12 marks)

I.

1. No anemic persons are blood donors
2. Some nurses are blood donors.
3. Therefore, some nurses are not anemic.

II.

1. All nursing is intervention.
2. No intervention is passive.
3. Therefore, no nursing is passive.

III.

1. All nursing in intervention.
2. All intervention is active.
3. Therefore all nursing is active.

IV.

1. Nursing is indispensable to health care.
2. The nursing process is indispensable to nursing.
3. Therefore, the nursing process is indispensable to health care.

### **QUESTION THREE (20 MARKS)**

Elaborate the rationale of the modern square of opposition

### **QUESTION FOUR (20 MARKS)**

Form the following Aristotelian logical inferences; conversion, obversion and contraposition.

### **QUESTION FIVE (20 MARKS)**

- a) What is the basic structure of categorical syllogism (6 marks)
- b) State and explain at least three rules of categorical syllogism (6 marks)
- c) Discuss the notion of Distribution in detail (12 marks)