



NATIONAL OPEN UNIVERSITY OF NIGERIA
91 CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESS WAY, JABI, ABUJA
FACULTY OF ARTS
DEPARTMENT OF PHILOSOPHY
2025_2 EXAMINATIONS.

COURSE CODE: PHL431:

COURSE TITLE: FURTHER LOGIC (2 CREDIT UNITS)

TIME: 2&1/2HRS

INSTRUCTIONS: Answer questions 1&2 and any other one of your choice.

1. a. What do you understand by Predicate Logic or Quantificational Logic? **11 marks**
b. With at least two examples, each, demonstrate the difference between Quantificational Logic and Propositional Logic. **15 Marks**
2. a. With one example for each, what do you understand by these terms?
 - i. Propositional Function
 - ii. Substitution Instance
 - iii. Instantiation
 - iv. Individual Constant
 - v. Individual Variable.
 - vi. Quantification **12 Marks, 2 Marks for Each**b. Symbolize the following showing their Subject and Predicate terms. (Use individual Constant instead of Variables):
 - i. Nkem is hardworking.
 - ii. Policemen are Sadists
 - iii. The street are flooded
 - iv. Students are demonstrating.
 - v. University Education is over subscribed
 - vi. Ukaegbu is well-behaved. **12Marks, 2Marks for Each.**
3. Symbolize the following showing their Subject and Predicate terms. (Use propositional function instead of individual Constants):
 - a. Agu is hardworking
 - b. Nwagu is hardworking
 - c. Ijoma is hardworking
 - d. Ukaegbu is hardworking. **12 Marks, 3 Marks for Each**b. Explain the following terms:

- i. Relational Proposition
- ii. Dyadic Proposition
- iii. Universal Generalization
- iv. Existential Generalization **8 Marks, 2 Marks for Each**

4. a. Symbolize the following showing their Subject and predicate terms and adding the logical operators or connectives already discussed in Propositional Logic:
- i. Agu is hardworking and Ezinne is beautiful.
 - ii. If it is raining outside, then the streets are flooded.
 - iii. Either Ijoma qualifies for the National Art Exhibition, or he will secure a scholarship for further studies.
 - iv. Moralists are humanists if and only if Sadists are moralists.
 - v. Students are not hardworking **10 Marks, 2 Marks for each.**
- b. Symbolize the following universal quantifier expressions using propositional functions instead of individual Constant.
- i. Given any individual, that individual is beautiful
 - ii. Given any individual that individual is hardworking
 - iii. Given any individual that individual is a Sadist
 - ii. Given any individual that individual is a Moralist
 - iii. Given any individual that individual is a democrat **10 Marks, 2 Marks for Each**