



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI-ABUJA
FACULTY OF COMPUTING
DEPARTMENT OF COMPUTER SCIENCE
2025_2 EXAMINATIONS

COURSE CODE: CIT474

COURSE TITLE: INTRODUCTION TO EXPERT SYSTEMS

COURSE CREDIT: 2 UNITS

TIME ALLOWED: 2 HOURS

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER TWO (2) QUESTIONS

- 1a. List and explain the roles of Individuals who interact with the Expert system (8 marks)
- 1b. Outline the components of the KEE. (6 marks)
- 1c. What does the sensor stage in vision of a Mycin do? (6 marks)
- 1d. Outline five (5) components of Expert System (5 marks)
- 1e. Explain five (5) of the components listed in question 1d above (5 marks)

- 2a. Indicate the year each of the following was invented. (8 marks)
 - i. PROLOG by Colmerauer and Roussel
 - ii. HEARSAY I (speech recognition)
 - iii. DaMarkov algorithm for controlling rule execution
 - iv. CLIPS expert system tool by NASA.
 - v. OPS expert system Shell by Forgy, used in XCON/R1.
 - vi. Frames by Minsky
 - vii. Rete algorithm for efficient pattern matching AI becomes commercial Inference Corp. Formed (releases ART expert system).
 - viii. CLIPS expert system tool by NASA
- 2b. Expert systems are now in commercial and research use in a number of fields. State the fields. (12 marks)

- 3a. Write an overview of a Knowledge Engineering Environment (KEE). (5 marks).
- 3b. In the context of object-oriented programming, name seven (7) postulates of inheritance in Frame- Based experts. (7 marks)
- 3c. Define KEE and give the history of its invention (8 marks)

- 4a. Enumerate extensively the components of Knowledge Engineering Environment (KEE) system. (10 marks)
- 4b. Draw the components of MYCIN system. (5 marks)
- 4c. Describe the method a Mycin operates. (5 marks).

- 5a. Categorize the following into “ADVANTAGE” or “DISADVANTAGE” of expert system:
 - i. Degradation (ii) Timeliness (iii) Creativity (iv) Learning (v) Scope (5 marks)
- 5b. Explain what this expert system characteristic means: “Make logical inferences based on knowledge stored.” (4marks)
- 5c. Enumerate seven (7) distinguishing characteristics of programming languages needed for expert systems applications. (7 marks)
- 5d. State four (4) Natural language interface (4 marks)