



NATIONAL OPEN UNIVERSITY OF NIGERIA
91 CADASTRAL ZONE, NNAMDI AZIKWE EXPRESSWAY, JABI, ABUJA
FACULTY OF COMPUTING
DEPARTMENT OF COMPUTER SCIENCE
2024_2 EXAMINATION

COURSE CODE: CIT 474

COURSE TITLE: INTRODUCTION TO EXPERT SYSTEMS

CREDIT: 2 UNITS

TIME ALLOWED: 2 HOURS

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

Question 1

- 1a. Briefly explain Knowledge Engineering [5 marks]
- 1b. Mention four (4) features that make Expert Systems operate as an interactive system [6 marks]
- 1c. Summarize in five (5) sentences the concept of Inheritance in Semantic Net [10 marks]
- 1d. List six (6) contrasting ideas between **Tacit** knowledge and **Explicit** knowledge [9 marks]

Question 2

- 2a. Differentiate between a Domain Expert and a Knowledge Engineer; give two (2) examples in each case. [8 marks]
- 2b. Using four (4) sentences, Summarize Natural Language Interface (NLI) for Expert Systems and mention four (4) avenues of NLI processing in the computer. [12 marks]

Question 3

- 3a. In three (3) sentences, illustrate how the back-end procedure of a text-to-speech system operate? [6 marks]
- 3b. Outline three (3) segments of recorded utterances in text-to-speech operation created in database [6 marks]
- 3b. List eight (8) functions of control mechanism in a blackboard system [8 marks]

Question 4

- 4a. Identify four (4) main objectives in the conceptualization phase of developing an Expert System. [4 marks]
- 4b. Explain in three (3) sentences the problem of using global database in blackboard architecture [6 marks]
- 4c. Write five (5) steps required for selection of Expert Systems-Based Tools [10 marks]

Question 5

- 5a. Mention eight (8) weaknesses of Blackboard Architecture [8 marks]
- 5b. Categories the operators, linguistic values and linguistic variables in the following production rules: [12 marks]
 - Rule 1: IF project_funding is adequate OR project_staffing is small THEN risk is low
 - Rule 2: IF project_funding is inadequate AND project_staffing is large THEN risk is high