NATIONAL OPEN UNIVERSITY OF NIGERIA,
PLOT 91, CADASTRAL ZONE, UNIVERSITY VILLAGE, JABI – ABUJA
FACULTY OF SCIENCES

MARCH 2018 EXAMINATION

COURSE CODE: CIT 474
COURSE CREDIT: 2
COURSE TITLE: INTRODUCTION TO EXPERT SYSTEMS
TIME ALLOWED: 2 Hours
INSTRUCTIONS:

- Answer question 1 and any other three (3) questions;
- Q**uestion 1 should be awarded 25marks, while other questions should be awarded 15 marks each;**
- The total score for all the questions is **70.**

QUESTIONS

1a. Expert systems are not cost-effective in contrast to human experts'.

i. Declare if the above statement is true or false. (1 mark)
ii. Write down three (3) good reasons to justify your response to question **1a.i**. (6 marks)

1b. Daemons are often prompted in expert systems. Outline the four (4) common incidences in which they are prompted. (8 marks)

1c. In spite of its numerous merits, expert systems have a number of demerits. State any four (4) of these demerits (8 marks)

1d. Explain the term 'shell' within the context of a expert systems. (2 marks)

[Total = 25 marks]

2. Within the context of expert systems, the precise roles of the following are:

a. Domain expert
b. System engineer
c. User }2 marks each = 8 marks
d. Knowledge engineer

2e. Following from the principle of interactivity, outline four (4) ways of interacting in Expert systems. (4 marks)

2f. List any three (3) basic components of a proposed expert system. (3 marks)

[Total = 15 marks]

3a.State the main distinction between the deep and the shallow knowledge in expert systems) 4 marks

3b.Illustrate this distinction in terms of Adamu studying and passing his exams for the shallow knowledge.) 2 marks

3c. Illustrate this distinction in terms of Adamu studying and passing his exams for the deep knowledge.) 3 marks

3d.Outline three (3) main ways in which expert systems can assign confidence values. (6 marks)

[Total = 15 marks]

4a. With the aid of a well-labelled diagram, outline the stages involved in designing and building a rule engine. (8 marks)

4b. State three (3) classic 'Rule Actions' in expert systems. (6 marks)

4c. What is the main role of the working memory in a proposed system. (1 mark)

[Total = 15 marks]

5a. Give a brief explanation of the following terms within the context of expert systems:

i. Grammar (2 marks)
ii. Shell (3 marks)
iii. Natural Language Interface (2 marks)

5b. Write down the core function of each of the following, based on principle of explanation facility.

i. TRACE
ii. WHY
iii. HOW
iv. WHAT-IF-

2 *marks each = 2 x 4 = (8 marks)*

[Total = 15 marks]