NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
MARCH/APRIL 2016 EXAMINATION

SCHOOL OF SCIENCE AND TECHNOLOGY

COURSE CODE: **CIT474**
COURSE TITLE: **Introduction to Expert Systems**

TIME ALLOWED: **$2^{1/}_{2}$ Hours**
INSTRUCTION: Answer any four (4) questions.

1a. Outline the steps involved in designing and building a **rule engine**.   ($11^{1/}_{2}$ marks)

1b. State two (2) typical 'Rule Actions' in expert systems.   (6 marks)

[Total = $17^{1/}_{2}$ marks]

2a. In simple terms, describe a **shell**.   (2 marks)

2b. Write down four (4) events that stimulate 'daemons', from the standpoint of expert systems.
         (8 marks)

2c. Give a brief explanation of each of the following terms:

     i. Attribute
     ii. Class-Frame
     iii. Row
     iv. Class
     v. Facet
     vi. Simkit
     vii. Instance-Frame

         ($7^{1/}_{2}$ marks)

[Total = $17^{1/}_{2}$ marks]

3. Write down the exact roles of the following within the context of expert systems:
     a. Domain Expert   ) 3 marks

b. System Engineer   ) 3 marks
c. User   )$3^{1/}_2$ marks
d. Knowledge Engineer   ) 3 marks

3e. Name five (5) key components of the slots of a frame.   (5marks)

[Total = 17$^{1/}_2$ marks]

4a. Following from the principle of interactivity, state any four (4) means of interacting in expert systems.   (12 marks)

4b. Give any four (4) examples of shells in expert systems.   (4 marks)

4c. Expert systems are said to be cost-effective compared to human experts. Give three (3) good reasons for this.   ($5^{1/}2$ marks)

[Total = 17$^{1/}_2$ marks]

5. Explain the technique for the automatic generation of Rule Translation using a well-labelled diagram for your illustration.

[Total = 17$^{1/}_2$ marks]

6a. Give a concise definition of the following in expert systems:
   i.   Explanation facility   (3 ½ marks)
   ii. Working memory   (4 marks)

6b. State any five (5) benefits of expert systems.   (10 marks)

[Total = 17$^{1/}_2$ marks]