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*(Knowledge for Development)*

**KIBABII UNIVERSITY**

**(KIBU)**

**UNIVERSITY EXAMINATIONS  
2019/2020 ACADEMIC YEAR**

**SPECIAL / SUPPLEMENTARY EXAMINATIONS  
YEAR FOUR SEMESTER II EXAMINATIONS**

**FOR THE DEGREE OF  
BACHELOR OF SCIENCE  
IN  
COMPUTER SCIENCE**

**COURSE CODE : CSC 467E**

**COURSE TITLE : KNOWLEDGE BASED SYSTEMS**

**DATE: 10/02/2021 TIME: 2.00 P.M – 4.00 A.M**

**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

### QUESTION ONE [COMPULSORY] [30 MARKS]

- a. What is knowledge based system? [2marks]
- b. Explain at least five of the tasks of a knowledge based system? [10 marks]
- c. Give six capabilities that a computer system must possess to pass the Total Turing Test. [6 marks]
- d. Explain why it would be difficult to develop a KBS for a domain in which there were a considerable reliance on tacit and implicit knowledge. [6 marks]
- e.
- i. Define the term learning agent. [2 marks]
  - ii. Give the components of a learning agent [4marks]

### QUESTION TWO [20 MARKS]

- a. Explain the real world application of knowledge based systems in agriculture. Give examples of applications currently available in the market. [10 marks]
- b. An expert system shell is a tool that has been specifically designed to enable speedy development of expert systems. Give at least **one** example of a shell and explain **four** features associated with it an expert system shell. [10 marks]

### QUESTION THREE [20 MARKS]

- a. Give some of the real world examples of knowledge based system. [4 marks]
- b. Explain the knowledge based system architecture in detail. [6 marks]
- c. Discuss the at least four knowledge representation formalisms and their associated inference. [10 marks]

### QUESTION FOUR [20 MARKS]

- a. Define the term Artificial Intelligence. [2 marks]
- b. List four disadvantages of expert system. [4 marks]
- c. List six abilities that are considered signs of intelligence. [6 marks]
- d. Define the following terms
- i. Fuzzy Logic [2 marks]
  - ii. Search [2 marks]
- e. Give the rationality properties. [4 marks]

## QUESTION FIVE [20 MARKS]

a. Explain the following and state when they are used

i. Scripts [2 marks]

ii. Lists [2 marks]

iii. Decision tables [2 marks]

iv. O-A-V triplet [2 marks]

b. For each of the following agents, develop a PEAS description of the task environment

[12marks]

i. agent: automated taxi driver

ii. Agent: Part-picking robot