(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR FOUR SEMESTER TWO

FOR THE DEGREE OF
COMPUTER SCIENCE

COURSE CODE : CSC 467E

COURSE TITLE : KNOWLEDGE BASED SYSTEMS

DATE: 06/ 11/2020 TIME: 2.00 P .M – 4.00 P.M

INSTRUCTIONS:

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE [COMPULSORY] [30 MARKS]

a. What is knowledge based system? [2 marks]

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 [4 marks]

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

i. agent: automated taxi driver [6 marks]

ii. Agent: Part-picking robot [6 marks]