MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

UNIVERSITY ORDINARY EXAMINATION

2018/2019 ACADEMIC YEAR

THIRD YEAR **FIRST** SEMESTER EXAMINATION FOR DIPLOMA IN INFORMATION TECHNOLOGY

SCS 059 - INTRODUCTION TO ARTIFICIAL INTELLIGENCE

DURATION: 2 HOURS

DATE: 23/4/2019

TIME: 2-4 P.M.

Instructions to candidates:

1. Answer question One and Any Other Two questions

2. Mobile phones are not allowed in the examination room.

3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a) Define the following terms:

    i. Artificial intelligence

    ii. Intelligence

    iii. Agent   (3marks)

b) Distinguish between the following:

  (i)Intelligent agent and rational agent   (2marks)

  (ii)Artificial intelligence technique and Artificial intelligence system   (2marks)

  (iii)Informed search and un informed search   (2marks)

c) Explain three classes of agents   (6marks)

d) A good representation scheme is a compromise among many competing objectives. Discuss two features of a good representation scheme.   (4marks)

e) State three limitations of production rule.   (3marks)

f) Translate the following into a predicate logic:

    i. Everybody in this room dislike going to the dentist.   (2marks)

    ii. If an integer is non even then it is odd.   (2marks)

g) Discuss any two real life applications of Artificial intelligence research areas.

      (4marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

a) (i) What is a robot?   (2marks)

  (ii) Discuss any four components of a robot.   (2marks)

b) (i) What is distributed Artificial Intelligence?   (8marks)

  (ii) Explain four areas where distributed Artificial Intelligence has been applied.

      (8 marks)

QUESTION THREE (20 MARKS)

(a) (i) Given the following fringe queue, use Breadth first search strategy to find the goal state.
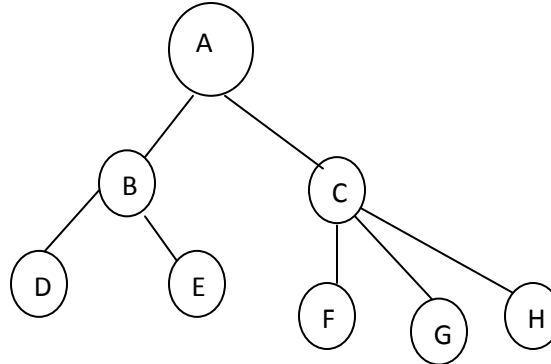
(4marks)

    (ii) Explain two properties of breadth first search. (4marks)

    (iii) Distinguish between breadth first search and depth first search. (2marks)

b) (i) Discuss four components of a knowledge base system. (8marks)
  (ii) State two reasons when we use knowledge base system. (2marks)

QUESTION FOUR (20 MARKS)

c) (i) What is a parse tree? (2marks)
  (ii) Draw a parse tree for the following sentence;
    "The thief robbed the apartment" (6marks)
b) Explain three tasks of computer vision. (6marks)
c) (i) What is semantic nets (2marks)
  (ii) Highlight four advantages of semantic nets (4marks)