MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR

SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

COURSE CODE: COM 2106
COURSE TITLE: ARTIFICIAL INTELLIGENCE

DATE : 3RD DECEMBER 2019 **TIME: 8.30-10.30 A.M.**

INSTRUCTIONS TO CANDIDATES:

SECTION A IS COMPULSORY ATTEMPT TWO QUESTIONS IN SECTION B

QUESTION ONE (30 MARKS)

a. State the major disadvantages of artificial intelligence as compared to natural intelligence. (2 marks)
b. Define an intelligent agent and explain why it is useful (2 marks)
c. Define speech recognition and understanding and state why is it useful (2marks)
d. All of the boxes in room 3 are larger than any of the boxes in room 7. Write a statement in predicate calculus to represent the information. (2 marks)
e. Define satisfiability and validity as used in knowledge representation (2 marks)
f. Define the following terms as used in artificial intelligence (10 marks)
    i. Agent
    ii. Autonomous
    iii. Equivalence
    iv. Heuristics
    v. Knowledge Engineering
g. According to Howard Gardner, an American developmental psychologist, the Intelligence comes in multifold ,discuss five types of intelligence (10 marks)

QUESTION TWO (20 MARKS)

A. Using a well labeled diagram discuss a goal based agent (10 marks)
B. Describe generic categories of ES applications (10 marks)

QUESTION THREE (20 marks)

a. Consider the sentence "Hammers are for driving nails into surfaces." Name two words in this sentence that are lexically ambiguous. (There are at least four.) For each of these two words, describe a disambiguation technique which will choose the right interpretation over at least one of the wrong interpretations. Be specific. (15 marks)
b. Explain the role of the intelligent systems and their potential benefits. (5 marks)

QUESTION FOUR (20 MARKS)

i. Explain briefly (2 or 3 sentences each) the difference between:(8 mks) Depth-first search and iterative deepening search.
ii. State space search and game tree evaluation.
iii. Top-down parsing and bottom-up parsing.
iv. A perceptron and a feed-forward, back-propagation neural network.

a. Neural networks are capable of learning and they need to be trained, explain three learning strategies that are used. (6 marks)
b. Discuss the components of a Robot (6 marks)

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