Code No. 11239 / S

FACULTY OF ENGINEERING

B.E. 4/4 (CSE) I-Semester (Suppl.) Examination, May / June 2019

Subject : Artificial Intelligence

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1	Differentiate between Intelligence and Artificial Intelligence	2
2	Define the problem as state space search problem and prove water jug problem	3
3	What do you mean by knowledge representation	2
4	Define resolution for predicate calculus.	3
5	Represent in propositional calculus the knowledge contained in the following sentence: "If cruise ships only go on big rivers and go on the ganges, then ganges is a big river"	3
6	Illustrate a two-layer feed-forward network with two inputs, two hidden modes and one output mode.	2
7	Describe information gain in a decision tree	2
8	What is fluent in situation calculus	3
9	Name any two speech acts	2
10	Differentiate between a crisp set and a fuzzy set. Define membership function in fuzzy system	3

PART-B (5x10 = 50 Marks)

11	Tony, Mike, and John belong to the Alpine Club. Every member of the Alpine Club is either a skier or a mountain climber or both. No mountain climber likes rain, and all skiers like snow. Mike dislikes whatever Tony likes and likes whatever Tony dislikes. Tony dislikes rain and snow. Use resolution refutation to prove that "Is there a member of the alpine club who is a skier but not a mountain climber?"	10

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12 (a) Discuss any two applications of artificial intelligence 5

(b) Consider the game tree given in figure.1, in which the root corresponds to a MAX node and the values of a static evaluation function, if applied, are given at the leaves. 5

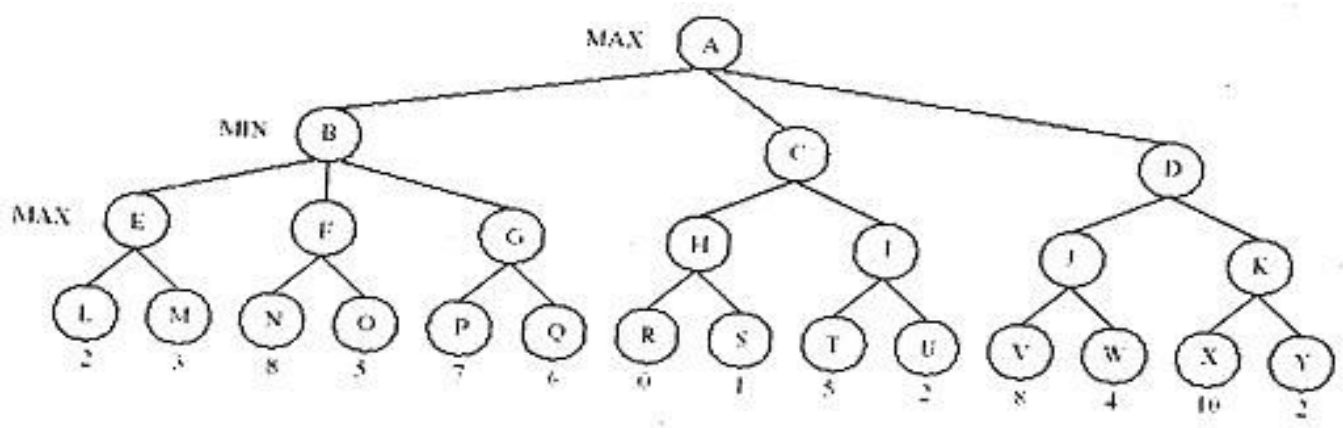

Fig.1: Game Tree

What is the minimax value computed at the root node for this tree? What move should MAX choose? Show all intermediate values at each node as they get updated.

13 List the components of STRIPS operator? Give an illustration of how forward search method proceeds by applying recursive STRIPS. Draw a search graph generated by applying one operator. 10

14 What is an expert system? Explain the main components of an expert system 10

13 Explain the importance of Natural Language Processing? Enumerate the various phases in NLP 10

16 (a) Define Entropy. 2

(b) Assume a domain with three attributes A, B, and C. Each attribute has two possible values T and F. Given below is a set of instances.

A	B	C	Target
T	T	T	Yes
T	T	F	NO
T	F	T	Yes
F	T	T	Yes
F	T	F	NO
F	F	F	Yes

Calculate the information gain for the attributes A, B and C. Which attribute would be selected by the standard ID3 algorithm. 8

17 (a) What is a neural network? What are its different layers? 5

(b) Explain briefly about Fuzzy Inference. 5

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