

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CS464

Course Name: ARTIFICIAL INTELLIGENCE

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 4 marks.

- | | | Marks |
|----|--|-------|
| 1 | Discuss the history of Artificial Intelligence. | (4) |
| 2 | Define the component of 8 puzzle problem with suitable example. | (4) |
| 3 | Illustrate the problem of under estimation and over estimation in A* | (4) |
| 4 | List the categories for actions in conceptual dependency. | (4) |
| 5 | What is a near miss situation in case of Concept Learning? | (4) |
| 6 | What is the importance of two bounds in Alpha-Beta cut-offs. | (4) |
| 7 | Draw the architecture of a backpropagation network and give its activation function. | (4) |
| 8 | What are the three stages of genetic algorithm? | (4) |
| 9 | Discuss the significance of context free grammar in natural language analysis. | (4) |
| 10 | Define the term text summarization. | (4) |

PART B

Answer any two full questions, each carries 9 marks.

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|----|--|-----|
| 11 | a) Explain the control strategies used to prepare production system. | (4) |
| | b) Define the component of 8 puzzle problem with suitable example. | (5) |
| 12 | a) Solve the following crypt arithmetic problem stating all the constraints. | (5) |

$$\text{EAT} + \text{THAT} = \text{APPLE}$$

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|----|--|-------|
| | b) Explain heuristic search technique with example. | (4) |
| 13 | a) Determine whether goal driven or data driven search would be preferable for solving error in a computer. State the reason also. | (4.5) |
| | b) Differentiate between A* algorithm and Best First Search algorithm. | (4.5) |

PART C

Answer any two full questions, each carries 9 marks.

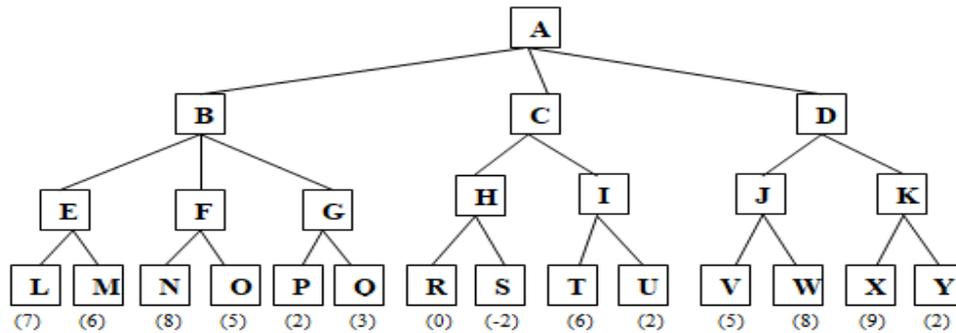
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|----|--|-----|
| 14 | a) Translate each of the following sentences into conceptual dependencies
“Jane gave Tom an ice cream ” | (4) |
|----|--|-----|

“Basketball players are tall”

“Panel cut down the tree with an axe”

“Place all the ingredients in a bowl and mix thoroughly”

- b) Explain the framework for Symbol-Based Learning (5)
- 15 a) Consider the following game tree in which static evaluation score are all from the players point of view: static evaluation score range is (+10 to -10) (9)



Suppose the first player is the maximizing player. What move should be chosen?

- 16 a) How and when heuristic is used in Minimax search technique? Illustrate the usage of heuristic in Minimax procedure. (4.5)
- b) Design a script for ordering food in a restaurant. (4.5)

PART D

Answer any two full questions, each carries 12 marks.

- 17 a) Define mutation. Show the difference of bit flip mutation and random resetting with the help of an example. (6)
- b) Illustrate swap mutation, scramble mutation and inversion mutation with the help of examples. (6)
- 18 a) What is the expected output when the sentence “He went to school” is given as input to a POS tagger ? (6)
- b) Write short note on probabilistic context free grammar with example. (6)
- 19 a) Elaborate on specific to general search algorithm. (6)
- b) Define the term stemming. What is the expected output when the string “She went for dancing with her sisters” is stemmed? (6)
