

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCTOBER 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	Distinguish between data driven search and goal driven search strategies	(4)
2	What is Turing Test? Explain.	(4)
3	How can we overcome the limitations of Generate and Test Method?	(4)
4	Design a Semantic Network for the following predicate statements. Is a(baseball player,pitcher) Is a(baseball player,fielder) Instance(three finger brown,pitcher) Instance(pee-wee Reese,fielder) Team(pee-wee Reese, Brooklyn Dodgers)	(4)
5	What are the various components of a script?	(4)
6	Describe the procedure of Alpha-beta pruning.	(4)
7	Define Version Space Search? Give 3 generalization operations used in machine learning with example.	(4)
8	Give an example for concept space with suitable diagram mentioning its properties and values.	(4)
9	List the applications of natural language processing.	(4)
10	Define noun phrase and verb phrase with example.	(4)

PART B

Answer any two full questions, each carries 9 marks.

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| 11 | a) You are given a 4-litre jug and a 3-litre jug. Neither has a measuring mark on it. You have to measure exactly 2 litres of water in the 4 litre jug. Define the production rules for solving the problem. | (4) |
| | b) Define uninformed search. Which kind of problems can use uninformed search? Why it can't be used in all AI problems? | (5) |
| 12 | a) What is A* algorithm? Is it optimal under all conditions? | (4) |
| | b) How is AO* different from A* algorithm? | (5) |

- 13 a) Using Constraint Satisfaction algorithm solve the following Crypt Arithmetic problem (4.5)
- $$\begin{array}{r} \text{SEND} \\ + \text{MORE} \\ \hline \text{MONEY} \end{array}$$
- b) Why knowledge representation is necessary in AI systems? Give AI systems in which knowledge is important? (4.5)

PART C

Answer any two full questions, each carries 9 marks.

- 14 a) Write the advantages and disadvantages of semantic networks (4)
- b) Draw a Semantic Network for the following scenario. (5)
- Tom is a cat. Tom caught a bird. Tom is owned by John. Tom is ginger in colour. Cats like cream. The cat sat on the mat. A cat is a mammal. A bird is an animal. All mammals are animals. Mammals have fur.
- 15 a) Describe in detail about Min-Max procedure (4)
- b) What is meant by n-ply look ahead? Discuss its advantages. (5)
- 16 a) Write notes on primitive action categories in conceptual dependency. (4.5)
- b) How Minimax procedure is implemented in exhaustively searchable state spaces? Explain using any two person game. (4.5)

PART D

Answer any two full questions, each carries 12 marks.

- 17 a) Elaborate on general to specific search algorithm. (6)
- b) Write the algorithm for Candidate Elimination Algorithm. (6)
- 18 a) Draw the parse for the input 'He brought the book' using given grammar (6)
- $S \rightarrow NP VP$
 $NP \rightarrow \text{Pronoun} | \text{Det} \text{ NOMINAL}$
 $\text{NOMINAL} \rightarrow \text{Noun}$
 $VP \rightarrow \text{Verb} | \text{Verb NP}$
- b) Differentiate the Expert System from knowledge-based system (6)
- 19 a) Depict the network topology of NETtalk. (6)
- b) Differentiate the syntax and semantic analysis phases in natural language analysis. (6)
