

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

Course Code: IT407

Course Name: Knowledge Engineering

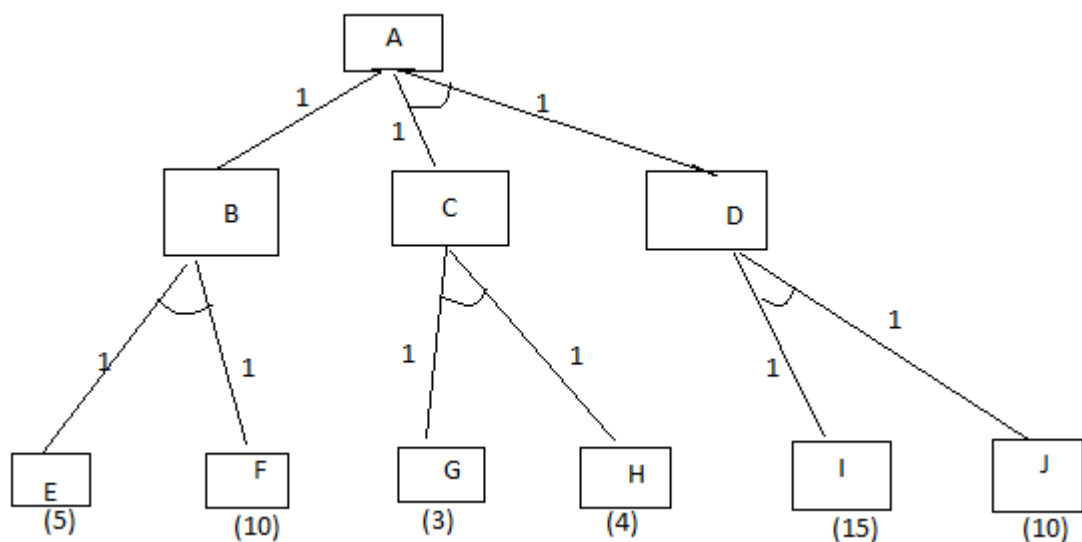
Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

- | | | Marks |
|---|---|-------|
| 1 | a) Write the algorithm for 'Simple hill climbing'. | (4) |
| | b) State Turing test. Explain its relevance in AI. | (3) |
| | c) Explain alpha-beta pruning by giving example. | (8) |
| 2 | a) Write initial state, goal state, set of rules and solution search tree for Tower of Hanoi problem
Consider the tower with three columns and 2 rings | (4) |
| | b) Illustrate the use of tuples in Python with example. | (4) |
| | c) Explain about A* algorithm with an example | (7) |
| 3 | a) Explain the any two of the informed and the uninformed searching strategies | (8) |
| | b) Find out the best cost and best path for following graph. | (7) |



PART B

Answer any two full questions, each carries 15 marks.

- | | | |
|---|--|-----|
| 4 | a) Illustrate with example conversion of well-formed formula to clause form. | (7) |
| | b) Explain rote learning and explanation based learning. | (8) |

- 5 a) How do you represent the following sentences in predicate logic? (3)
1. Every student who studies three hours a day pass the exam
 2. Everyone in Kerala is hard working
 3. Students who are regularly late for the first hour classes are hostlers
- b) Prove R from the facts: $P \rightarrow Q$, $Q \rightarrow R$, and P. (4)
- c) Is it possible that a program can be better by generalizing from its own experiences using the Parameter adjustment method? Give one example. (5)
- d) What is Inductive Learning? (3)
- 6 a)
 1. The members of bridge club are Joe, Sally, Bill and Ellen. (8)
 2. Joe is married to Sally.
 3. Bill is Ellen's brother.
 4. The spouse of every married person in the club is also in the club.
 5. The last meeting of the club was at Joe's House.

Represent these facts in predicate logic. Also prove by forward chaining
"Ellen is not Married"
- b) How the learning from examples is implemented? Explain with two techniques. (7)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Create a Hopfield network and find out its possible stable states. (10)
- b) What are the characteristic features of expert systems (10)
- 8 a) Explain in detail about Recurrent Network. (10)
- b) Explain MYCIN and DART expert systems (10)
- 9 a) Differentiate Connectionist AI and Symbolic AI. (10)
- b) What are the issues in building expert systems (5)
- c) What is expert system shell. (5)
