

D-180282**B. Tech. EXAMINATION, 2018**

Semester V (CBS)

ARTIFICIAL INTELLIGENCE AND EXPERT
SYSTEM (CSE, IT)

CS-504

Time : 3 Hours

Maximum Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt Five questions in all, selecting *one* question from each Sections A, B, C and D and all the sub-parts of the question in Section E.

Section A

1. (a) Explain any *two* informed search strategies in detail. 6
- (b) Describe the A* search and give the proof of optimality of A*. 6

2. (a) What is an Agent ? Explain the basic kind of agent program. 6
- (b) What is depth limited search ? Give the recursive implementation of depth limited search. 6

Section B

3. (a) Write an algorithm for deciding entailment in proposition logic. 6
- (b) Explain standard quantifier of first order logic with example. 6
4. (a) Explain the forward chaining algorithm with the help of pseudo code. 6
- (b) Give the completeness proof of resolution. 6

Section C

5. (a) Explain back propagation learning algorithm with an example. 6
- (b) Describe any genetic algorithm working principle with real time implementation. 6
6. (a) What is the basic problem with genetic algorithm ? Explain with suitable example. 6
- (b) Explain the details about Hopfield network with an example. 6

Section D

7. (a) Explain the knowledge characteristics of Expert system with an example. 6
- (b) Explain, how forward chaining is different from backward chaining expert system with suitable example. 6
8. (a) Discuss the different design issues to be solved to use HMM for real world application. 6
- (b) Write the difference between skill and knowledge characteristics of expert system with example. 6

Section E

9. (a) What is the use of heuristic functions ?
- (b) How to improve the effectiveness of a search-based problem-solving technique ?
- (c) What is unification algorithm ?
- (d) How can you represent the resolution in predicate logic ?
- (e) Write the difference between JTMS and LTMS.
- (f) What are framesets and instances ? 6×2=12