Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 50397

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017

Fifth/Sixth Semester

Computer Science and Engineering

CS 6659 – ARTIFICIAL INTELLIGENCE

(Regulations 2013)

(Common to Electronics and Instrumentation Engineering, Instrumentation and Control Engineering, Information Technology)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A (10×2=20 Marks)

1. State the advantages of Breadth First Search.

2. What is Commutative production system ?

3. Convert the following into Horn clauses.

   $\forall x : \forall y : cat(x) \vee fish(y) \rightarrow likes - to - eat(x, y)$

4. Differentiate forward and backward reasoning.

5. Define Fuzzy reasoning.

6. Compare production based system with frame based system.

7. Define adaptive learning.

8. What is hierarchical planning ?

9. List the characteristic features of expert system.

10. What is MOLE ?

P.T.O.

PART – B (5×13=65 Marks)

11. a) Explain the following types of Hill Climbing search techniques.

i) Simple Hill Climbing. (4)

ii) Steepest-Ascent Hill Climbing. (5)

iii) Simulated Annealing. (4)

(OR)

b) Discuss Constraint Satisfaction problem with an algorithm for solving a Cryptarithmetic problem. (13)

12. a) Consider the following sentences : (13)

- John likes all kinds of food
- Apples are food
- Chicken is food
- Anything anyone eats and isn't killed by is food
- Bill eats peanuts and is still alive
- Sue eats everything Bill eats.

i) Translate these sentences intoformulas in predicate logic.

ii) Convert the formulas of part a into clause form.

(OR)

b) Trace the operation of the unification algorithm on each of the following pairs of literals : (13)

i) f(Marcus) and f(Caesar)

ii) f(x) and f(g(y))

iii) f(Marcus, g(x, y)) and f(x, g(Caesar, Marcus)).

13. a) Explain the production based knowledge representation technique. (13)

(OR)

b) i) Discuss about Bayesian Theory and Bayesian Network. (6)

ii) Describe in detail about Dempster-Shafer theory. (7)

14. a) Write short notes on the

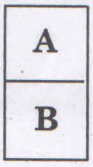
i) Learning by Parameter Adjustment. (4)

ii) Learning with Macro-Operators. (4)

iii) Learning by Chunking. (5)

(OR)

b) i) Write down STRIPs-style operators that corresponds to the following blocks world description. (8)



ON(A,B,S0) ∧
ONTABLE(B,S0) ∧
CLEAR(A,S0)

ii) Write short notes on Nonlinear Planning using Constraint Posting. (5)

15. a) Explain the following expert systems :

i) MYCIN. (7)

ii) DART. (6)

(OR)

b) Explain the expert system architectures :

i) Rule-based system architecture. (4)

ii) Associative or Semantic Network Architecture. (3)

iii) Network architecture. (3)

iv) Blackboard System Architectures. (3)

PART – C (1×15=15 Marks)

16. a) Design an expert system for Travel recommendation and discuss its roles.

(OR)

b) Analyse any two machine learning algorithms with an example.