KADI SARVA VISHWAVIDHYALAYA

B.E. Semester-VI

Subject Code :- CE/IT 602   Subject name:-ARTIFICIAL INTELLIGENCE

Date:- 2·11·15   Time:- 10:30 to 1:30   Total Marks:-70

Instruction:

1. Answer each section in separate Answer sheet.
2. Use of Scientific Calculator is permitted.
3. All questions are **Compulsory.**
4. Indicate **Clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work.**

Section-I

Q-1   **(All compulsory)**

(A)   Define AI. List out characteristics of AI problem & explain any one of them   [5]
in detail.

(B)   Explain the production system with control strategies in detail.   [5]

(C)   What is Hill Climbing? Explain Simple Hill Climbing.   [5]

OR

(C)   Solve water-Jug Problem using Production Rule System   [5]

Q-2   **Answer the following Questions.**

(A)   Explain depth first search (DFS) and breadth first search (BFS) with suitable   [5]
examples. Why is 'depth limited search' necessary in DFS?

(B)   Explain AO* algorithm in detail   [5]

OR

(A)   Explain simulated annealing algorithm   [5]

(B)   Explain A* algorithm in detail.   [5]

Q-3   **Answer the following Questions.**

(A)   What is local maximum, Plateau and Ridge and how to deal with this   [5]
problem?

(B)   Solve The following Crypt arithmetic problem: [5]
   C R O S S
+ R O A D S

   D A N G E R

OR

(A)   Explain generate and test algorithm.   [5]

(B)   Solve The following Crypt arithmetic problem: [5]
   S E N D
+ M O R E

MONEY

Section-II

Q-4   (All compulsory)

(A)   Differentiate between forward and backward reasoning and under what   [5]
conditions each would be best to use for given set of problem.

(B)   What is fuzzy logic? How it is used for decision making under uncertainity?   [5]

(C)   Explain the different approaches to knowledge representation.   [5]

OR

(C)   Explain followings: [5]
(i) Sementic net
(ii) Frames

Q-5   Answer the following Questions.

(A)   Define Logical Agent. Explain Wumpus world problem the   [5]

(B)   Assume the following facts :   [5]
- 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..
    i.   Translate these sentences into formulas in Predicate logic
    ii.   Prove that John likes peanuts using backward chaining.

OR

(A)   Explain the Bayesian Networks.   [5]

(B)   Assume the following facts :   [5]
- Anyone whom mary loves is a football star.
- Any student who does not pass does not play.
- John is a student.
- Any who does not study does not pass
- Anyone who does not play is not a football star.
Prove using resolution process that "If John does not study, then Mary does not love John".

Q-6   Answer the following Questions.

(A)   Write a prolog program to find sum of all the number of a list   [5]

(B)   Explain the Minimax Procedure with example.   [5]

OR

(A)   What is Ontology? Discuss RDF with example.   [5]

(B)   Demonstrate the use of Cut and Fail Predicates in Prolog with example.   [5]

ALL THE BEST

KADI SARVA VISHWAVIDHYALAYA

B.E. Semester-VI

Subject Code :-_____   Subject name:-ARTIFICIAL INTELLIGENCE

Date:- 29.4.15   Time:- 10:30 to 1:30   Total Marks:-70

Instruction:
1. Answer each section in separate Answer sheet.
2. Use of Scientific Calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **Clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

Section-I

Q-1   (All compulsory)

   (A)   Explain the State Space with the use of 8 Puzzle Problem.   [5]

   (B)   What is production system? Explain it with an example. Discuss the   [5]
       Characteristics of a production system.

   (C)   Solve Travelling Salesman Problem using any AI technique   [5]

OR

   (C)   Solve water-Jug Problem using Production Rule System   [5]

Q-2   Answer the following Questions.

   (A)   Explain depth first search (DFS) and breadth first search (BFS) with suitable   [5]
       examples. Why is 'depth limited search' necessary in DFS?

   (B)   Explain AO* algorithm.   [5]

OR

   (A)   Explain simulated annealing algorithm   [5]

   (B)   i.   What do you mean by admissibility of an algorithm? Is A* algorithm   [5]
          an admissible one? When?
       ii.   Differentiate between declarative and procedural representation of
          knowledge.

Q-3   Answer the following Questions.

   (A)   What is local maximum, Plateau and Ridge? Give solution to this problem   [5]

   (B)   Solve The following Crypt arithmetic problem: [5]

     C R O S S
   +R O A D S

    D A N G E R

OR

   (A)   Define AI? Explain the characteristics of AI problem.   [5]

   (B)   Solve The following Crypt arithmetic problem: [5]

Section-II

Q-4 **(All compulsory)**

(A) Differentiate between forward and backward reasoning and under what conditions each would be best to use for given set of problem. **[5]**

(B) Explain following Prolog Terminology:- Predicates, Clauses, Atoms, Character, Arity **[5]**

(C) Explain the different approaches to knowledge representation. **[5]**

OR

(C) Explain the algorithm of predicate logic resolution. **[5]**

Q-5 **Answer the following Questions.**

(A) Explain the Minimax Procedure with example. **[5]**

(B) Assume the following facts : **[5]**
- Steve only likes easy courses.
- Science courses are hard.
- All the courses in the basket weaving department are easy.
- BK301 is a basket weaving course.

Use Resolution to answer the question, "What Course would Steve like?"

OR

(A) Explain the Bayesian Networks. **[5]**

(B) Assume the following facts : **[5]**
- 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 into formulas in Predicate logic
  ii. Prove that John likes peanuts using backward chaining.

Q-6 **Answer the following Questions.**

(A) Write a prolog program to find sum of all the number of a list **[5]**

(B) Define Logical Agent. Explain Wumpus world problem. **[5]**

OR

(A) What is Ontology? Discuss RDF with example. **[5]**

(B) Demonstrate the use of Cut and Fail Predicates in Prolog with example. **[5]**

ALL THE BEST