6E6027

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6E6027

B.Tech. VI - Semester (Main & Back) Examination, April-2019
Computer Science & Engg.
6CS6.2A Artificial Intelligence

Time : 3 Hours **Maximum Marks : 80**
Min. Passing Marks : 26

Instructions to Candidates:

*Attempt any **Five questions**, selecting **One question** from **each unit.** All Questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly). Units of quantities used/calculated must be stated clearly.*

UNIT - I

1. a) What is AI and AI techniques? Briefly explain how AI techniques can be represented. List out some of task domain of AI? **(8)**

   b) Define production system. Explain the elements of production system and also explain the characteristics of production system? **(8)**

(OR)

1. a) Discuss comparison between DFS and BFS with various types of control strategies. **(8)**

   b) Enumerate classical "water Jug problem". Describe the state space for this problem. Solve this problem by giving its operation sequence. **(8)**

UNIT - II

2. a) What is knowledge representation and also differentiate knowledge and knowledge base? **(8)**

   b) What are KBS independent technologies? Explain in brief. Also write the business benefits of KBS. **(8)**

(OR)

2. a) What are the various approaches & issues in knowledge representation? (8)

b) Define the following terms: (8)

i) Mapping

ii) Homomorphic

iii) Horn clause

iv) Reasoning

UNIT - III

3. a) How fuzzy logic is different from conventional binary logic? Explain it with appropriate example. (8)

b) Differentiate forward and backward reasoning. (8)

(OR)

3. a) What are the frames? Explain with suitable example. (8)

b) Define the theory of Conceptual dependency. Explain with diagram. (8)

UNIT - IV

4. a) What are game playing techniques? Explain minimax procedure with example. (8)

b) What is natural language processing ? Explain with example. (8)

(OR)

4. a) What is Alpha – Beta planning strategy? Explain its need with example. (8)

b) Explain the goal stack panning approach for solving the compound goals. (8)

UNIT - V

5. a) What do you mean by learning ? Explain any one technique which is used in learning? (8)

b) Define neural network and explain its application. (8)

(OR)

5. a) Explain single layer perception model of the neural network. What are its features? (8)

b) Differentiate the "Learning by taking advice" and "Learning by example" with and example. (8)

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6E6027

B.Tech. VI Semester (Main&Back) Examination, April/May - 2017
Computer Sc. & Engg.
6CS6.2A Artificial Intelligence

Time : 3 Hours **Maximum Marks : 80**
Min. Passing Marks : 26

Instructions to Candidates:

*Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitable be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Unit - I

1. a) Explain artificial intelligence with suitable example.

   b) Write the characteristics of production system, with various types of production systems.

OR

1. a) Differentiate the breadth first search and depth first search in detail.

   b) What is Control strategy, define briefly.

Unit - II

2. Explain non monotonic reasoning with suitable example.

OR

What is predicate logic? Differentiate propositional and predicate logic.

Unit - III

3. a) Convert the following statement into predicate logic.

   1) Horses, cows and pigs mammals.
   2) An offspring of a horse is a horse
   3) Bluehog is a hog
   4) Bluehog is a charlie parent
   5) Offspring & parent are inverse relation.

6) Every mammal has a parent.

b) Write short note on Minimalist reasoning.

OR

3. Explain the concept of script as a structure describing the sequences of events. Construct a script of any suitable examples.

Unit - IV

4. a) What is natural language processing? Explain with example.

b) Explain the following in detail :

1) Syntactic processing 2) Semantic processing

OR

4. a) What are game playing techniques? Explain minimax procedure with example.

b) Explain the algo of minimax search procedure with suitable diagram of two ply search and packing up the value of two ply search.

Unit - V

5. a) What do you mean by expert system? Explain "MYCIN" in depth with block diagram.

b) Explain the concept of hop field neural network with suitable sketch with its applications.

OR

5. a) What are the techniques used in measuring? Explain.

b) How "learning by example" is different from "learning by taking advice"? Explain it giving suitable example.

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B.Tech VI Sem. (Main/Back) Examination, May, 2012

Computer Engineering

6CS6.2 ARTIFICIAL INTELLIGENCE

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks: 24

Instructions to Candidates:

*Attempt any **five questions,** selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. Nil 2. Nil

Unit–I

Q.1 (a) What are the major categories of AI? Explain them briefly. Why AI is a matter of research? **[8]**

(b) Enumerate classical "Water Jug Problem". Describe the state space for this problem. Solve this problem by giving its operation sequence. **[8]**

OR

Q.1 (a) Why AI is related with engineering stream? Justify it with suitable example. What engineering field are related with AI & what are their role in AI? **[5]**

(b) Differentiate between the following

(i) A* algo and AO* algo **[7]**

(c) Define the 8-Puzzle problem. **[4]**

Unit–II

Q.2 (a) Explain briefly the difference between procedural & declarative knowledge. [5]

(b) Differentiate between domain dependent knowledge & domain independent knowledge. [5]

(c) What are KBS independent technologies? Explain in brief. Also write the business benefits of KBS. [6]

OR

Q.2 (a) What are the various approaches & issues in knowledge representation? [8]

(b) Define the following terms:

(i) Mapping

(ii) Homomorphic

(iii) Horn clause

(iv) Reasoning [8]

Unit–III

Q.3 (a) Convert the following statement into predicate logic:

(i) Horses, cows and pigs are mammals.

(ii) An offspring of a horse is a horse.

(iii) Bluchog is a hog.

(iv) Bluchog is a Charlie parent.

(v) Offspring & parent are inverse relation.

(vi) Every mammal has a parent. [8]

(b) Write short note on:

(i) Default logic

(ii) Minimalist reasoning [8]

OR

Q.3 (a) Explain the algorithm of predicate logic resolution. **[8]**

(b) explain the difference between forward & backward reasoning (chaining) & under what condition each would be best to use for. **[6]**

Sol. (a) Refer chapter 5, section 5.3, page no. 5.11

(b) Refer chapter 6, section 6.2, page no. 6.3.

Unit–IV

Q.4 (a) Explain the algorithm of MINMAX search procedure and discuss any two from following:

(i) Alpha Beta cutoff

(ii) Secondary search

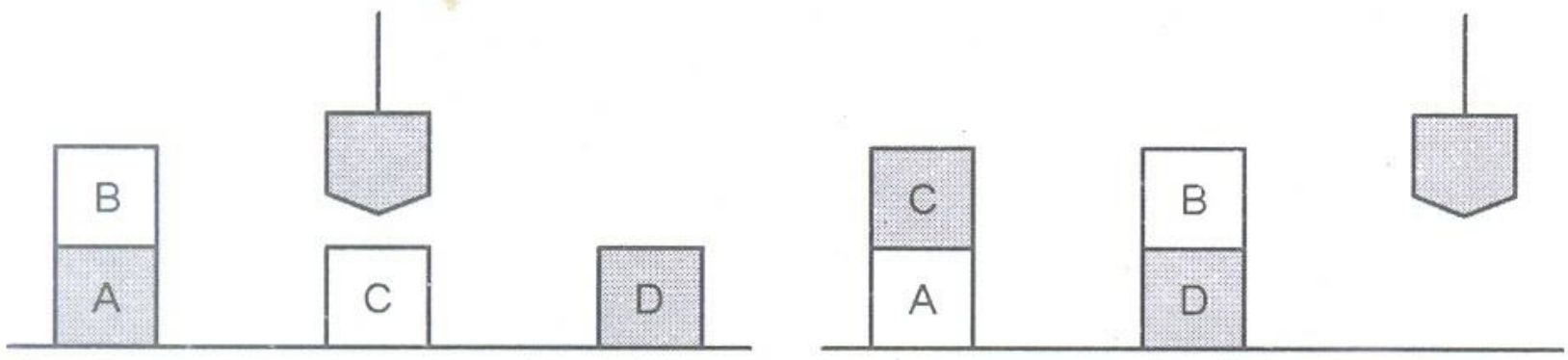
(iii) Waiting for quiescences **[8]**

(b) What are stips in NLP? List & explain them briefly. **[8]**

OR

Q.4 (a) Write note on "hierarchical Planning". **[8]**

(b) Consider the following block world problem



Figure

Initial: On (B, A)n
On table (A)n
On table (C)n
On table (D)n

Goal: On table (A)n
On table (D)n
On (C, A)n
On (B, D)

Arm empty

(i) Show STRIPS would solve this problem.

(ii) Show how TWEAKS would solve this problem. [8]

Unit–V

Q.5 (a) Discuss following:

(i) Learning in problem solving

(ii) Explanation based learning [10]

(b) Explain the major application areas of neural network. [6]

OR

Q.5 (a) Explain the different types of artificial neural network of architecture. [8]

(b) Write shsort note on:

(i) DENDRAL

(ii) MYCIN [8]

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6E3207

B. Tech. VI Sem. (Main & Back) Exam., May/June-2014

Computer Engineering

6CS6.2 Artificial Intelligence

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks: 24

Instructions to Candidates:-

*Attempt any **five questions,** selecting **one question** from **each unit**. All Questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/ calculated must be stated clearly.

Use of following supporting material is permitted during examination.

1._____ 2._____

UNIT-I

Q.1 (a) Explain artificial intelligence with suitable example. [8]

(b) Write the characteristics of production system, with various types of production systems. [8]

OR

Q.1 (a) Write the definition of Artificial intelligence & explain A^* & AO^* algorithm. [8]

(b) Discuss comparison between DFS & BFS with various types of control strategies. [8]

UNIT-II

Q.2 (a) Explain Approaches to knowledge representation using predicate logic with example. [8]

(b) Explain issues in knowledge representation. [8]

OR

Q.2 (a) Explain computable functions & predicates. [8]

(b) What is unification algo? Explain with examples. [8]

UNIT-III

Q.3 Explain Baeyes' theorem & prove how Fuzzy logic is different from binary logic with example. [16]

OR

Q.3 What are the concepts of semantic net in knowledge representation? Explain the theory of conceptual dependency using suitable diagram. [16]

UNIT-IV

Q.4 (a) Explain the algo of minimaxi search procedure with suitable diagram of two-ply search & backing up the value of two-ply search. [8]

(b) Why does the search in game playing always proceeds forward from the current position rather than backward from goal state? [8]

OR

Q.4 (a) What is Alpha – Beta planning strategy? Explain its need with example. [8]

(b) What do you mean by natural language processing? Explain in brief. [8]

UNIT-V

Q.5 (a) What do you mean by expert system? Explain "MYCIN" in depth with block diagram. [8]

(b) Explain the concept of hopfield neural network with suitable sketch with its applications. [8]

OR

Q.5 (a) What are the techniques used in measuring? Explain. [5]

(b) How "learning by example" is different from learning by taking advice? Explain it giving suitable example. [6]

(c) What are the issues of common sense? [5]

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Roll No. _____ [Total No. of Pages : 3

6E6027

B.Tech. VI Semester (Main/Back) Examination, May - June 2015

Computer Science

6CS6.2 Artificial Intelligence

Time : 3 Hours **Maximum Marks : 80**

Min. Passing Marks : 24

Instructions to Candidates:

*Attempt any **five** questions, selecting one question from **each unit**. All questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Unit - I

1. a) What is AI and AI techniques? Briefly explain how AI technique can be represented. List out some of task domain of AI ? **(8)**

b) Define production system. Explain the elements of production system and also explain the characterstics of production system ? **(8)**

OR

1. a) Discuss the algorithm of A* with the advantage over best first search procedure ? **(8)**

b) Discuss and compare hill climbing and Best - First - search technique ? **(8)**

Unit - II

2. a) Discuss various approaches and issue in knowledge representation ? **(8)**

b) Explain the Algorithm of predicate logic resolution ? **(8)**

RTU paper

OR

2. a) Explain Non - monotonic resoning and discuss various logic associated with it ? **(8)**

   b) Explain the difference between propositional and predicate logic ? **(8)**

Unit - III

3. a) Explain Fuzzy logic and rule based system ? **(8)**

   b) Explain baye's theorem and what is mean by conditional probability ? **(8)**

OR

3. a) A problem solving search can proceed either forward and backward. What factors determine the choice of directions for a particular problems ? **(8)**

   b) Short note on: Semantic networks scripts schemas. **(8)**

Unit - IV

4. Explain the algorithm of MINIMAX search procedure and discuss the following:

   i) Alpha Beta Cutoff

   ii) Waiting for quiescence **(8×2=16)**

OR

4. a) What are the steps in natural language processing ? List and explain them briefly ? **(8)**

   b) Explain the following in detail:

   i) Syntactic processing

   ii) Semantic processing **(8)**

Unit - V

5. a) Discuss winston's learning program ? **(8)**

   b) Discuss "Explanation based generalization" [EBG] with the help of classical chess example. **(8)**

OR

5. a) Write a short note on : Version space ? **(8)**

   b) Discuss any two from the following:

   i) Learning in problem solving.

   ii) Learning from example.

   iii) Expla nation based learning. **(8)**