QPC: RN18001194 AR - 18 Reg. No.

GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, November – 2021

(Seventh Semester)

BCSPE7020 - Artificial Intelligence and Expert System

(C.S.E)

Time: 3 hrs Maximum: 100 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) (2 x 10 = 20 Marks)

Q.1. Answer ***ALL*** questions			[CO#]	[PO#]
a.	The application/applications of Artificial Intelligence is/are ?		CO1	PO1
	i. Expert Systems	ii. Gaming		
	iii. Vision Systems	iv. All of the above		
b.	Among the given options, which search algorithm requires less memory?		CO1	PO2
	i. Optimal Search	ii. Depth First Search		
	iii. Breadth-First Search	iv. Linear Search		
c.	The component of an Expert system is_____ ?.		CO1	PO1
	i. Knowledge Base	ii. Inference Engine		
	iii. User Interface	iv. All of the above		
d.	Which algorithm is used in the Game tree to make decisions of Win/Lose?		CO2	PO2
	i. Heuristic Search Algorithm	ii. DFS/BFS algorithm		
	iii. Greedy Search Algorithm	iv. Min/Max algorithm		
e.	___ search always finds the goal and is preferred over the breadth-first search when the search tree is known to have a plentiful number of goals, further it requires less memory as space complexity is O(d) compared to O(bd) of breadth-first search.		CO1	PO2
	i. BFS	ii. DFS		
	iii. A*	iv. None of these		
f.	The name Prolog, is short for ___.		CO2	PO1
	i. Logic of the program	ii. Logic Programming		
	iii. Programming in Logic	iv. Programming for Logic		
g.	To which depth does the alpha-beta pruning can be applied?		CO3	PO1
	i. 8 States	ii. 6 states		
	iii. 10 state	iv. any		
h.	Which function is used to calculate the feasibility of whole game tree?		CO3	PO1
	i. Evaluation function	ii. Transposition		
	iii. Alpha-beta pruning	iv. All of the mentioned		
i.	In artificial Intelligence, knowledge can be represented as_____.		CO1	PO1
	A. Predicate Logic			
	B. Propositional Logic			
	C. Compound Logic			
	D. Machine Logic			
	i. Both A and B	ii. Only B		
	iii. Both B and C	iv. Only D		
j.	What is the form of Knowledge representation?		CO2	PO1
	i. IF-THEN	ii. IF-THEN-ELSE		
	iii. IF-ELSE	iv. All of the above		

PART – B: (Short Answer Questions) **(2 x 10 = 20 Marks)**

Q.2. Answer ***ALL*** questions	[CO#]	[PO#]
a. List down the characteristics of intelligent agent.	CO1	PO1
b. What do you mean by blind search ?	CO1	PO1
c. What are the differences and similarities between Problem Solving and Planning?	CO1	PO1
d. Mini-max is not good for game playing when the opponent is not playing optimally.' Justify using suitable example.	CO1	PO2
e. Distinguish between Supervised learning and Unsupervised learning.	CO2	PO1
f. Define meta knowledge in expert system	CO2	PO1
g. List various informed search strategy.	CO1	PO1
h. What do you mean by Constraint Satisfaction?	CO1	PO1
i. What are the characteristics of production system? Explain	CO1	PO1
j. What are the advantages of Breadth First Search?	CO1	PO1

PART – C: (Long Answer Questions) **(15 x 4 = 60 Marks)**

Answer ***ALL*** questions	Marks	[CO#]	[PO#]
3. a. Differentiate between BFS and DFS algorithm.	10	CO1	PO1
b. What is AI ? Explain production system	5	CO1	PO1
(OR)			
c. Explain with a suitable example on each case of the followings (i) A* (ii) AO * algorithm	10	CO1	PO2
d. What are the disadvantages of Steepest Hill Climbing Search Procedure? Using a suitable search tree, illustrate that these drawbacks are limited in Best First Search	5	CO1	PO2
4. a. State Representation of facts in predicate logic with an example.	7	CO2	PO1
b. Explain Forward and Backward Reasoning with the help of examples.	8	CO2	PO1
(OR)			
c. Write notes about : (i) 8-puzzle problem. (ii) Frame based knowledge representation	10	CO1	PO2
d. Explain weak and strong slot-and-Filer structures as well as mention the role of Frames in AI	05	CO2	PO3
5. a. How game playing plays the crucial role in AI ? Explain briefly Mini-max search algorithm with suitable example	08	CO3	PO2
b. Why Goal stack planning necessary in AI ? Explain the role in Game playing.	07	CO3	PO2
(OR)			
c. Write the algorithm for Iterative deepening depth first search? How IDDFS algorithm different with DFS algorithm?	10	CO3	PO2
d. What are the different types of grammars used in Natural Language Processing? Explain each with examples	05	CO3	PO1
6. a. What do you mean by Genetic Learning? Write short notes on Induction	08	CO4	PO1
b. What are the different types of learning? Explain briefly	07		
(OR)			
c. What do you mean by Expert system? Describe its component and application.	07	CO4	PO1
d. Write short notes of the following: - • Bidirectional search strategies • Depth Limit Search	08	CO1	PO1

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