Roll	No	
------	----	--



COER University END SEMESTER EXAMINATION, EVEN SEM 2022-23

rogram N Course Nai lote: All que	: 3 hours Total Marks ame : B.Tech.(Hons.)-CSE, CSE(AI&ML), CSE(Cyber Security) Semester me : Artificial Intelligence Course Code : stions are compulsory. No student is allowed to leave the examination hall before the completion of the time	: 100 : IV : SOC 20 e.	6
0. No 1		<u> </u>	BI
(a)	Attempt Any Four Parts. Each Question Carries 5 Marks.	CU	DL
(4)	Strategies played a role in the development of A12	CO 1	1
(b)	Given a problem that equipped for diag the chartest path between two points on a map		
/	which search strategy would you recommend and why?	CO 1	1
(c)	Explain how the nodes of the following graph will be		
	traced using depth first search, starting at node '1':	CO 1	2
(d)	Write the difference between Informed and Uninformed search	CO 1	2
(e)	Difference between Artificial Intelligence and Human Intelligence	CO 1	2
(-/	Stretence between Artheral Intelligence and Frankan Intelligence.		-
Q. No 2	Attempt Any Four Parts, Each Question Carries 5 Marks	CO	BI
(a)	Explain the basic principles of AI in solutions that require problem solving and finding		
	optimal paths.	CO 2	2
(b)	How does the Branch and Bound algorithm work in finding optimal paths, and what		-
	are its strengths and weaknesses?	CO 2	2
(c)	Explain Hill climbing algorithm with the help of an example? Also explain the	60 0	-
	limitations of it.	02	2
(d)	Consider the graph given in figure below. Assume that initial state is S and the goal state is 7. Find a path from initial state to goal state using A* search. Also report the solution cost. Consider the value of G(n) for all nodes are 1 and the straight line distance heuristic estimates for the nodes are as follows: H(1)=14 $H(2)=10H(3)=8$ $H(4)=12H(5)=10$ $H(6)=10H(S)=15$	CO 2	4
(e)	Describe the divide and conquer approach to solving problems in AI and explain how it can be used to find optimal paths.	CO 2	2
Q. No 3	Attempt Any Four Parts. Each Question Carries 5 Marks.	CO	B
(a)	What is a production rule in the context of knowledge and reasoning? Give an example	CO 2	7
	of a production rule and explain how it works.	0.0.3	-
(b)	Write the wumpus world Problem in Al.	CO 3	2
(c)	what is the role of fuzzy logic in rule-based systems? Give an example of a scenario in which fuzzy logic might be used.	CO 3	2
(d)	Proof if A & B is true, then D is also true by Backward chaining: - Knowledge base for the problem is: $A\&C \rightarrow E$, $A\&E \rightarrow G$, $B \rightarrow E$, $G \rightarrow D$	со з	3

2
) 4

Q. No 5	Attempt Any Two Parts. Each Question Carries 10 Marks.	СО	BL
(a)	Explain in detail how decision trees work as a method of classification and regression. Provide an example of a decision tree for a real-world problem and discuss the advantages and limitations of decision trees compared to other machine learning methods.	CO 5	2
(b)	Explain Reinforcement Learning with the help of an example.	CO 5	2
(c)	How Artificial intelligence, Machine Learning, and Deep Learning differ from each other?	CO 5	2

-End of Paper-----

C