Form 1

Final Exam

20d m - A19 /2020	Code:CS400
Program: 2nd Term: 2019 /2020 Cour	se Code:CS460
Level: 4th Course: Artificial Intelligence Date	: 5 /7 /2020
Total pages: 6 Total Time	allowed:180 min.

Answer the following questions:

Form 1

1- Determine the following statements are true or false (60 Marks).

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	(H)
1- Machines with minds is an example of acting rationally in Al.	(P)
The study of the design of intelligent agents is an example of acting humanly in AI. The study of mental faculties through the use of computational models is an example	(P)
The study of mental factories as a se of computational me	10
of thinking rationally.	n (+)
of thinking rationally. The study of the computations that make it possible to perceive, reason, and act is at a complete of thinking humanly in AI.	1
example of thinking humanly in Al.	n
The art of creating machines that perform functions that require intelligence whe performed by people is an example of acting rationally in Al.	-
the assemble of acting rationally in AT	(1)
- test a computer passes the test if a numan interrogator can fell the with	en (F)
8- The computer must have the natural language processing (NLP) capability	to (F)
perceive objects. The computer must have knowledge representation capability to store what	t it (()
	1
	()
10- The cognitive modeling approach is an example of thinking rationally in Al. 11- The laws of thought approach is an example of acting humanly in Al.	(T)
11- The laws of thought approach is an example of acting humanly in AI. 12- The rational agent approach is more general than the laws of thought approach is more general than the laws of th	E
12- The rational agent approach is more general than the laws of thought approach. 13- The rational agent approach is more general than the laws of thought approach approach is more general than the laws of thought approach as perceiving its environment through	ach. (T
	1 (F
14- An agent is anything that can be viewed in through sensors. actuators and acting upon that environment through sensors.	
actuators and acting upon that environment along is sensors. 15- The agent function is a concrete implementation, running within some physic	al C
15- The agent function is a concrete impress	1
	(
system. 16- The agent program that maps any given percept sequence to an action.	
1 a cont is one mai does my right times.	
- 1 Lockwidthe are allianting in a man winter win-	
and puzzle is an example of a fully observable christians	
20- Backgammon is an example of a deterministic environment.	1
20- Backgammon is an example of a partially observable environment.	1.200
21- Taxi driving is an example of a partially observable environment.	
22. Part-picking robot is an example of a single agent environment.	
Taxi driving is an example of a deterministic environment.	
24- Part-picking robot is an example of an episodic environment.	
4- Part-picking control of the product of the	



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25-Simple reflex agents are agents which in addition to state information have a kind a simple reflex agents are agents desirable situations.		
ale reflex agents are agentibes desirable situations.		
26- Utility-based agents base their consideration to act rationally. 27- Simple reflex agents have internal state which is used to keep track of past states		
to act rationally.	(X)	
27- Simple reflex agents that the same ideast	22.0	
	(4	
of the world. 28-Agents with goals take future events into sanderation.	L)	
29- Simple reflex age by reasoning about which actions achieve the goal.	2	
30- Goal-based act by reasoning about with the same active the goal. 31-Utility-Based Agent is used for a measure of happiness. 31-Utility-Based Agent, Critic provides feedback on the agent's performance based on	9	A
Tag to a learning agent,	ex	
a fixed performance element introduces improvements in	X	
performance elements. 34- In a learning agent, a problem generator suggests actions that will lead to new	W	1
and informative experiences of deciding what actions and states to	W	1
consider, given a goal.	10	1
consider, given a goal. 36- There are 6 components to formulate any problem. 36- There are 6 components to formulate any problem.	it G	A
36- There are 6 components to formulate any problem. 37- In a problem formulation, a description of what each action does is the goat test		
step.	10	4
step. 38- In the 8-puzzle problem, any state can be designated as the initial state.	1	X
38- In the 8-puzzle problem, any state can be designated as the initial state. 39- In the 8-queens problem, any state can be designated as the initial state.	AI /	X
39- In the 8-queens problem, any state can be designated as the initial and a state and a	11.	60
40- The traveling salesperson problem (1917) mean its children. 41- In a tree search, successor nodes of a node means its parent.		62
41- In a tree search, successor node of a node means its parent. 42- In a tree search, predecessor node of a node means its parent.	-	4
42- In a tree search, predecessor had a tree search is called level.		(
42- In a tree search, predecessor node of a field level. 43- The distance from root to leaf in a tree search is called level. 44- The path in a tree search is a sequence of nodes along the edges of a tree.		(
		V
44- The path in a tree search is a sequence of the search algorithm, we use explored set to avoid cycle. 45- In the tree search algorithm, we use explored set to avoid cycle.		6
1 4 to the political contents		1(1
46- Explored set is used to 1. 47- A graph can have loops and self-loops. 47- A graph can have loops and self-loops.	aranh -	10
47- A graph can have loops and self-loops. 48- In the graph, there is no predefined number of edges, and it depends on the graph.	grapi	10
48- In the graph, there is no predefined number of edges, and it depends 49- Optimality means the algorithm guaranteed to find a solution when there is o	one.	1
49- Optimality means the argonal long does it take to find a solution.	15 6	7
50- Space complexity means now long a heuristic function is the reduction of the	staté	1
St- The princip	next	
space. 52- Best first search uses an evaluation function $f(n)$ and always chooses the n	lo.	1
node to be that with the best score. node to be that with the best score. 13- In greedy search, the idea is to expand the node with the best estimated cos	st to	The second
reach the goal.		
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54	partment of Compu	d Informatics	3.000
54- The greedy best fir 55- Best First search is 56- Uniform Cost sear 57- A heuristic h(n) is 58- A heuristic is consi	-	~	The state of the s
56- Usest First seest fir	st com 1		
56- Uniform Cost search is 57- A heuristic h(n) is 59- The time and space	a specialport	* * algorithm	10
58 A heuristic he	ch is a case of the sa col	mplete algorithm.	(X)
59. Theuristic is	admissis of As algor	drifthm.	W
60. De time and	istent if he if for my	$de n, h(n) \leq h^*(n).$	(X)
a sive beet e	compleyie c(n,q,n') +	h(n).	00
58- A heuristic h(n) is 59- The time and space 60- Recursive best-firs	search (Pro A is hm.	al continu	
60- Recursive best-firs 2- Choose the correct a	(ABFS) is an exp	onential -space algorithm	
61-ri	nswer (60 Man)		
61-The exciting new et (a) thinking humanly 62- The study of menta	fort	THE BOOK OF THE	
60. The humanly	(b) make comput	think is called	to estine rationally
62- The study of ment: (a) thinking humanly 63- The art of creation	al faculty	think is called(c) thinking rationally (c	dole is called
dilliking human	raculties through	f computational inc	
63- The art of creating performed by peop	machine humanly	(of thinking rationally (intelligence when
performed by peop	le is called	functions that require	
(a) thinking humanly	(M) master 1	1 11.	d) acting rationally
the study of how to	o make as	hings at which at the m	oment, people are
and the carried	computers do t		
(a) thinking humanly	(5) acting humanly	(c) thinking rationally	(d) acting rationally
65- The Turing test app	proach is an example (of	
(a) thinking humanly	(b) acting humanly	(c) thinking rationally	(d) acting rationally
66- The is use	d to enable it to comm	nunicate successfully in	English.
(a) natural language	(b) robotics	(c) machine learning	(d) computer vision
processing (NLP)			
67- Thecapal	oility is used in compu	ater to perceive objects.	(Vd) asymptomician
(a) natural language	(b) robotics	(c) machine learning	(d) computer vision
(NII D)			
68-The cognitive mode	ling approach is an e	xample of	(d) acting rationally
			(u) acting rationally
a) thinking humanly 59- The "laws of thoug	ht" approach is an e	xample of	
) thinking humanly	(b) acting humanly	(e) thinking rationally	(d) acting rationall
a) thinking humanly O- The agent can perc	eive its environment	through	I/Atyrone
0- The agent can perc	(5) sensors	(c) actions	(d) receivers
a) actuators 1- The sensors detect	U conente that are i	relevant to the choice o	f action in
1. The sensors detect	all aspects that are	988	Local Control of the
amrironment.	11	6 fully observable	(u) non occur
atially observable	(b) semi observabl	e (c) fully observable	fenvironment.
) partially observative	The same of the same	consor Is an Camer	The second of th
a) partially observable 2- A vacuum agent wi	(b) semi observab	le (c) fully observable	
partially observable	is on example of a	agent.	(d/single
ward nuzzle	IS all example of a	(c) double	y) sings
A crossword puzz	Total sales	(C) Gouote	
partially observable crossword puzzle semi		ge 3 of 6	

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Taxi driving is an expartially observable			(d) non observable
(a) partially observable	(h) comi observable	(c) fully observable	non observable
76-The n	ops from percent his	stories to actions.	
The Street and the second section of the second section	(h) anant	ICA APCIII TUITETTO	(d) rational agent
(a) agent program	the physical archite	cture to produce the fun	ction.
/1·c	-	(c) agent function	(d) rational agent
agent program	(b) agent	ion action rules.	
78- Theagent	Children and the second	(a) model pascu	(d) utility based
simple reflex	(b) goal based	ich do not have memory	of past world
79- The agents ar	e stateless devices wh	icii do not mave	
states.	(b) goal based	(c) model based	(d) utility based
The	agents take future evi	to into consideration.	
(a) simple reflex	(b) goal based	(model based	(d) utility based
80 The agen		ed systems.	oth william based
(a) simple reflex	(b) goal based	(c) model based	(4) utility based
(a) simple reflex	(%) goal based	(c) model based	(d) utility based
83- The provi standard in learni	des feedback on agen	it's performance based of	(M critic
(a) learning element	(b) performance	(c) problem generator	
84- Theselec	ting actions based on	percepts in learning age	(d) critic
(a) learning element	(b) performance	(c) problem g	
85- The sug	gests actions that wil	Il lead to new and inform	native experience
learning agent app (a) learning element	(b) performance		
	element	a at a that manches	the goal is called
86- The process of loo	king for a sequence	of actions that reaches	(d) sequenci
(a) perceiving	(b) searching	(c) acting	lation is called
(a) perceiving 87- A description of w	hat each action does	s in the problem formu	lation is caned
A description of	(b) actions	(e) transition mode	(d) goal tes
a) initial state	mines whether a giv	en state is a goal state	in the problem
10- 1110			
formulation.	(b) actions	(c) transition mode	el (a) goal te
a) initial state	O augens problem	isqueens on the	board.
a) initial state 9- The initial state in	8-queens	(c) one	(d) no
9- The initial state in a) all 0- The goal test in 8-	(b) lour	gueons on the h	oard without or
a) all	queens problem is	queens on the b	oard without a
a cel a magi lest in	a v faut	(c) one	(d) no

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a) successor	s no parent is	The state of the s	
The node has successor The distance from a) branch The Sequence of	(b) leaf the tree	search.	(d) predecessor
a) branch	root to lear:	wah is called .	············
B- The Sequence of	height nodes also	I/o) level	(d) path
branch	aoues along it	fa tree is called	(d) path
04- A tree has	(b) height	(c) level	(d) patr
a) n	······ edges.		(d) zero
95- The explored set	(b) n+1	10 n-1	
95- The explored set (a) tree	is used in ase	arch.	(d) exploitation
96- A can	graph graph	(c) exploration	
96- A can	(b) and self-loo	***	(A) graph
97- The in ala	(b) queue	(c) linked list	to find a solution when
there is one.	or trillin means the algo	rithm guaranteed	to find a solution when
(a) optimality	OK	Lidation	(d) verification
98- Breadth first se	arch (RES) is an	(c) vandares	search.
(a) guided	(b) informed	blind	(d) goal based
99- The frontier in			(d) priority queue
	(b) stack	(c) linked lis	(d) priority que
(2) queue 100- Breadth first	earch (RFS) is called	path fir	
(a) langest	(b) cheapest	(c) deepest	(u) shortest
(a) longest	(b) cheapest arch (DFS) is an exar	mple of a (an)	search. (d) goal based
101- Depth first se	(b) informed	(e) blind	(0) 8000
(a) guided	n the depth first sear	rch uses a	ist (d) priority queue
102- The frontier	(b) stack	(c) linked	ist (G)
(a) queue	arch (DFS) is called	path fir	rst. (d) shortest
103- Depth first se	arch (DFS) is called (b) cheapest	(c) shallo	search.
(a) longest	(b) cheapest search (UCS) is an (b) informed	example of a (an)	(d) goal based
104- Uniform cost	(b) informed	(c) blind	12010
(a) guided	(b) informed in the uniform cost (b) stack	search uses a	d list of priority queue
105. The frontier	in the uniform cost	(c) linke	dlist
(a) queue	(b) stack t search (UCS) is ca (3) cheapest	lled pa	th first. (d) shortest
(a) queue	t search (UCS) is ca	(c) shal	lowest
106- Union	(b) quadration	dth first search	is (d) logarithmic
(a) longest	mplexity in the brea	(e) ext	ponential (d) logarithms
107- The time co.	(b) quadration (b) quadration (b) quadration (b) quadration (c) qu	C Sent coare	h is
(a) linear	-levity in the br	eadth first searc	h is (d) logarithmi
tog. The space c	omplexity quadrati	ic (6) 62	policina
100 Lingar	(b) quadration (b) quadration (b) quadration (b) quadration (c) quadration (d) q) quadration (d) quadration (d) quadration (d) q) quadration (d) quadration (d) quadration (d) quadration (d) q) quadration (d) quadration (d) quadration (d) q) quadration (d) quadration (d) q)	oth first search	is (d) logarithm
(a) linear	mplexity in the de	ic (6)	xponential (d) togatte
109- The time co	(b) quadrate (b) quadrate (complexity in the d	th first spare	h is (d) logarith
(a) linear	emplexity in the d	epth inst scare	exponential (d) logarita
The space of	(b) quadra	Page 5 of 6	CA



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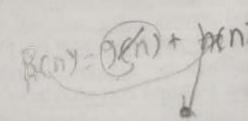


Form 1

112 The space complex	(b) depth-first	(c) uniform cost	(d) A *	
112- The space complex	city in the depth-limi	ited search is		
(a) linear	(b) quadratic	(c) exponential	(d) logarithmic	
113- The searc	h combines the bene	fits of depth-first and b	readth-first search.	
(a) Iterative deepening	(b) bi-directional	(c) greedy best first	(d) A *	
114 - A* search is an ex	cample of a (an)			
(a) unguided	(6) informed	(c) blind	(d) goal based	
115- Greedy best first i				
(a) unguided				
116- Uniform cost sear	ch is a special case o	f A* search if		
(a) $g(n) = 0$	(b) $f(n) = 0$		(d) f(n) = h(n)	
117- Best first search is	s a special case of A*	search if	1 - 1 - () - ()	
(a) g(n) = 0	(b) $f(n) = 0$	(c) $h(n)=0$	(d) f(n) = g(n)	
118- A heuristic $h(n)$ is	admissible if for		1 (1) 2 (a) > 1°(a)	
(a) $h(n) \leq h^*(n)$	(b) $h(n) = h^*(n)$	(c) $h(n) > h^*(n)$	(d) $h(n) \ge h^*(n)$	
119- A heuristic is cons		OFFICE STATES OF THE PARTY OF T	1745	
(a) >	20) <	(c) =	\(d) ≥	
20- Recursive best-firs	st search (RBFS) is (b) quadratic	space algorit	(d) logarithmic	

The end of the exam

Dr. Ahmed Fouad Ali



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