Printed	D ago	e-01 Subic	oct C	od	۰. ۸	۲۵۷	105	13				
1 mileu	i i age	Roll	No [.]	out	- A	CSF	105	15				
N		A INSTITUTE OF ENGINEEDING AND T										
IN	UIDA	A INSTITUTE OF ENGINEERING AND I	ECF d to	11Ν' Δ K	ULU TH		, Ur kno		ICK	. NU	יועA	L
		R Tech	u 10 1		10,	Luc	KIIU	vv)				
		SEM: V - THEORY EXAMINAT	FION	J (2	024	- 20	25)					
		Subject: Introduction to Artif	icial	Int	ellig	ence	:					
Time	: 3 Ho	lours			U				Ma	x. M	larks	s: 100
Genera	ıl Insti	tructions:										
IMP: V	erify l	that you have received the question paper w	vith t	the	cori	ect o	cour	·se, c	ode,	, bra	nch	etc.
1. This	Ques	stion paper comprises of three Sections -A, I	B, &	С.	It co	onsis	ts oj	f Mul	ltipl	e Ch	oice	
Questi	ons (M	MCQ's) & Subjective type questions.										
2. <i>Max</i>	imum	n marks for each question are indicated on r	right	-hc	ind s	ide o	of ec	ich q	uesi	tion.		
3. Illus	trate y	your answers with neat sketches wherever i	neces	ssai	ry.							
4. Assu 5. Prof	ime su Forabb	unable data if necessary.										
6 No s	heet s	should be left blank. Any written material as	fter a	ı hl	ank	shee	t wi	ll noi	t he			
evalua	ted/ch	hecked.		. 01		Snee						
SECT	ION-A	· <u>A</u>										20
1. Attempt all parts:-												
1-a. Strong Artificial Intelligence is (CO1,k							<i>J</i> '					1
	(a)	the embodiment of human intellectual cap	abili	ties	wit	hin a	cor	nput	er			
	(b) intell	a set of computer programs that produce output that would be considered to reflect										
	(c)	the study of mental faculties through the u	se of	m	ental	l mo	dels	imn	lem	ente	d on	а
	computer					u on	u					
	(d)	all of the mentioned										
1-b.	Th	he characteristics of the computer system ca	pabl	e o	f thi	nking	g, re	ason	ing	and		1
	lea	arning is known is (COI,KI)										
	(a)	machine intelligence										
	(b)	human intelligence										
	(c)	artificial intelligence										
	(d)	virtual intelligence										
1-c.	In	which of the following situations might a b	olind	sea	irch	be ad	ccep	otable	e? ((202	,K1)	1
	(a)	real-life situation										
	(b)	complex game										
	(c)	small search space										

(d) all of the mentioned

•

LIFO is ______ where as FIFO is _____. (CO2,K1) 1-d.

- (a) Stack, Queue
- (b) Queue, Stack
- (c) Priority Queue, Stack
- (d) Stack. Priority Queue
- 1-e. Translate the following statement into FOL. "For every a, if a is a philosopher, 1 then a is a scholar" (CO3,K1)
 - (a) \forall a philosopher(a) -> scholar(a)
 - (b) \exists a philosopher(a) -> scholar(a)
 - (c) All of the mentioned
 - (d) None of the mentioned
- 1-f. Artificial intelligence is about.(CO3,K1)
 - (a) Putting your intelligence into Computer
 - (b) Programming with your own intelligence
 - (c) Making a Machine intelligent
 - (d) Playing a Game
- 1-g. Which of the following is/are correct advantages of Semantic nets?(CO4,K1) 1

1

2

- (a) Easy to understand
- (b) Efficient in space requirement
- (c) Easy to visualise
- (d) All of the above
- 1-h. An Agent is anything that takes actions according to the information that it gains 1 from the environment. (CO4,K1)

2

- (a) TRUE
- (b) FALSE
- (c) Sometimes true sometimes false
- (d) Agent is not at all associated with environment.
- 1-i. The entries in the full joint probability distribution can be calculated by (CO5,K1) 1
 - (a) Using variables
 - (b) Using information
 - (c) Both using variables and information
 - (d) None of these
- 1-j. What are the composition for agents in artificial intelligence? (CO5,K1) 1
 - (a) Program
 - (b) Architecture
 - (c) Both Program and Architecture
 - (d) None of the above
- 2. Attempt all parts:-
- 2.a. Describe the role of well defined learning problems in AI. (CO1,K2)

Page 2 of 4

2.b.	Define advantages of A* Search. (CO2,K2)	2		
2.c.	Explain the limitations of Propositional Logic. (CO3,K2)	2		
2.d.	Name any four Expert Systems.(CO4,K1)	2		
2.e.	Explain Planning in Artificial Intelligence? (CO5,K2)	2		
<u>SECTIO</u>	<u>N-B</u>	30		
3. Answe	r any <u>five</u> of the following:-			
3-a.	Explain the various areas where AI (Artificial Intelligence) can be used.(CO1,K2)	6		
3-b.	Machine Learning is related to Artificial Intelligence. Justify this statement through examples. (CO1,K3)	6		
3-c.	List the criteria to measure the performance of different search strategies.(CO2,K3)			
3-d.	Describe State Space Tree using suitable examples and diagrams. (CO2,K3)	6		
3.e.	Define alpha and beta values in a game tree by using a suitable example. (CO3,K3)			
3.f.	Explain Forward Chaining and Backward Chaining with diagram.(CO4,K2)	6		
3.g.	Define the Bayesian Network in detail with example. (CO5,K2)	6		
SECTIO	<u>N-C</u>	50		
4. Answe	er any <u>one</u> of the following:-			
4-a.	Explain computer vision in parlance to the artificial intelligence.(CO1,K2)	10		
4-b.	Explain History of Artificial Intelligence in detail also gives a brief introduction to the Turing test in AI. (CO1,K2)	10		
5. Answe	er any <u>one</u> of the following:-			
5-a.	Define Minimax Algorithm using suitable example and also explain the terminologies involved in a Minimax problem. (CO2,K2)	10		
5-b.	Compare between Iterative deepening, Heuristic Search & A*. Which one is better explain with suitable example. (CO2,K3)	10		
6. Answe	r any <u>one</u> of the following:-			
6-a.	 Prove that "Marcus hates Caesar" using Resolution graph. (CO3,K3) (a) Marcus was a man. (b) Marcus was a Roman. (c) All men are people. (d) Caesar was a ruler. (e) All Romans were either loyal to Caesar or hated him. (f) Everyone is loyal to someone. (g) People only try to assassinate rulers they are not loyal to. (h) Marcus tried to assassinate Caesar. 	10		
6-b.	Explain Missionaries Cannibals Problem in AI by writing the steps in the form of Production rules. (CO3,K3)	10		
7. Answe	er any <u>one</u> of the following:-			
7-a.	Give a short note about the following. (CO4,K2) a. Hidden Markov model b. Utility Theory	10		

•

- c. Bayesian networks
- 7-b. Define Knowledge Based System and also explain the architecture of Knowledge 10 Based Systems.(CO4,K2)
- 8. Answer any one of the following:-
- 8-a. Describe the meaning of reasoning under uncertainty. "Dempster Shafer Theory 10 can be interpreted as a generalization of probability theory, where probabilities are assigned to sets as opposed to mutually exclusive singletons." Justify the statement with suitable example.(CO5,K4)
- 8-b. Explain intelligent agents including simple reflex agent, model based reflex agent, 10 goal based agents and utility based agents and their uses in artificial intelligence. (CO5,K3)

op. July phone and the second