

END SEMESTER EXAMINATION - 2023
Subject : Artificial Intelligence
New Syllabus
Semester – 6th
Branch – Computer Engineering
Subject Code – CO-606
Full Marks - 70 (Part A – 25 + Part B – 45)
Duration – 3hours


Instructions :

1: Questions on Part A are compulsory and objective type.

2: Answer any five from Part B

Question No.	Questions	Marks
1:	Fill in the blanks	1 X 5
a	The 'Imitation game' was proposed by _____	
b	NLP stands for _____	
c	_____ technique improves the efficiency of search process.	
d	The algorithm to narrow the version space is termed as _____.	
e	_____ provides structure to AI programs.	
2:	State true or false	1 X 5
a	Artificial Intelligence can also be termed as non-human intelligence.	
b	ELIZA, is an interactive computer program that could functionally converse in English with a person.	
c	Propositional Calculus is more general as it allows variables, quantifiers, and relations.	
d	Induction is the process of purposeful class creation.	
e	Markov algorithm is implemented by building a network of nodes.	
3:	Answer briefly in a single sentence	1 X 5
a	Define facts as in AI.	
b	Define goal test.	
c	State the two ends of learning.	
d	Name the expert system related to chemical analysis.	
e	Which operator in Prolog is used to stop searching for more solutions after the first is found ?	
4:	Match the following	1 X 5
a	Modus Ponens	i) AM
b	DFS	ii) Blocks
c	Theory driven discovery	iii) Inference Rule
d	Winston's Learning Program	iv) Genetic learning
e	Fitness function	v) Uninformed Search
5:	Choose the correct option	1 X 5
a	Disjunction is denoted by	

	i) \neg	ii) \wedge	iii) \vee	iv) None of these		
b	Optimal solution means i) no heuristic iii) least path cost				ii) best goal formation iv) None of these	
c	All Prolog variables starts with i) Small letter ii) Small or Capital letter iii) Capital letter iv) none of these					
d	The value provided to the gene within a particular chromosome is termed as i) allele ii) gene iii) population iv) none of these					
e	Application of a rule never prevents the later application of another rule in _____ production systems. i) monotonic ii) partially commutative iii) non-monotonic iv) commutative					
PART - B						
6: a:	Define intelligence ? Write a few lines on any two ways to achieve AI.				2 + 2	
b:	Explain the inferential knowledge representation approach with an example Or Explain the procedural knowledge representation approach with an example				3	
c:	Differentiate between 0 th order and 1 st order logic. (Two important points)				2	
7: a:	Represent the following using predicate logic : i) Jimmy is a dog. ii) Jack loves Jimmy iii) Jimmy is loyal to Jack iv) Everyone is loyal to someone v) Jack likes all kinds of dogs.				5	
b:	Differentiate between declarative representation of knowledge and procedural representation of knowledge. OR State the problems associate with the Hill Climbing algorithm and the solutions to the problems.				4	
8: a:	Differentiate between derivational and transformational analogy.				5	
b:	Explain the explanation based learning system specifying the necessary inputs to the system. OR Explain briefly the phases of genetic algorithm				4	
9: a:	Define perceptron and its constituents. OR Explain the concept of supervised, unsupervised and reinforcement learning.				2 + 3	
b:	Explain the architecture of production systems.				4	
10: a:	State the steps of the Markov algorithm.				4	
b:	State the facts represented by the following Prolog statements.					

	<p>i: valuable(gold). ii: wet(water). iii: thanked(mary, thomas). iv: likes(X, jyoti), likes(jyoti, X) v: parent (tom, jack), brother(jack, jill)</p>	5
11: a:	Explain the structure of a Prolog program stating its different components.	5
b:	<p>What is a List in Prolog ? Explain in brief the different operations that can be performed on lists.</p> <p style="text-align: center;">OR</p> <p>Write Prolog programs to</p> <p style="margin-left: 40px;">I) Convert fahrenheit to celcius. II) Calculate area of a rectangle.</p>	4