University of Mumbai

Examination 2021 under cluster KJSIEIT

Examinations Commencing from 22nd April 2021 to 30th April 2021

Program: Computer Engineering

Curriculum Scheme: Rev2019

Examination: M.E. (Artificial Intelligence) Semester I

Course Code: MEAIC101 and Course Name: Building Blocks of Artificial Intelligence

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Time: 2 hours

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks (2 marks each).	
1.	Which of the following best suits the context of Artificial Intelligence?	
Option A:	Systems that think like humans	
Option B:	Systems that think rationally	
Option C:	Systems that act like humans	
Option D:	Systems that act rationally	
2.	Blind search can be used in:	
Option A:	Real-life situations	
Option B:	Small search Space	
Option C:	Complex games	
Option D:	Large search Space	
3.	Which search algorithm checks the neighboring solutions not explored till the time?	
Option A:	Depth First Search	
Option B:	Beam Search	
Option C:	Hill Climbing	
Option D:	Tabu Search	
4.	Which of the following disciplines does not strongly connect to Artificial Intelligence?	
Option A:	Computer Vision	
Option B:	Transaction Processing	
Option C:	Information Retrieval	
Option D:	Machine Learning	
5.	Nodes in Neural Network that take values TRUE (T) and FALSE (F) are called	
Option A:	Dual Nodes	
Option B:	Boolean Nodes	
Option C:	Two-way Nodes	
Option D:	Ordered Nodes	
6.	Which of the following strategies are not used in ANN?	
Option A:	Unsupervised Learning	
Option B:	Reinforcement Learning	
Option C:	Supreme Learning	
Option D:	Supervised Learning	

7.	A perceptron can be defined as:	
Option A:	A single layer feed-forward neural network with pre-processing	
Option B:	An auto-associative neural network	
Option C:	A double layer auto-associative neural network	
Option D:	A neural network that contains feedback	
	In method for defuzzification, the crisp value of the output variable is	
8.	computed by finding the variable value of the centre of gravity of the membership	
	function for the fuzzy value	
Option A:	Center of Sums	
Option B:	Mean of Maxima	
Option C:	Mean of Minima	
Option D:	Centroid	
9.	For solving Travelling Salesman Optimization Problem using Genetic Algorithms,	
	which encoding scheme is the best suited?	
Option A:	Binary Encoding	
Option B:	Permutation Encoding	
Option C:	Tree Encoding	
Option D:	Value Encoding	
10		
10.	Which parameters are randomly considered in a Neural Network?	
Option A:	Weight and Bias	
Option B:	Only Weights	
Option C: Option D:	Activation Function	
Option D.	Only Bias	
11.	Which of the following is not the application of Genetic Algorithms?	
Option A:	Scheduling	
Option B:	Optimization	
Option C:	Classification	
Option D:	Management of Applications	
12.	In uniform crossover, what does the mask value '1' imply?	
Option A:	Bits that should be ignored	
Option B:	Bits that should be inverted	
Option C:	Bits that should be copied from the parent to the offspring	
Option D:	Bits that should not be copied from the parent to the offspring	
13.	The Fuzzy Logic System Architecture does not include	
Option A:	Fuzzification Module	
Option B:	Knowledge Base	
Option C:	Defuzzification Module	
Option D:	Activation Function	
14.	Concerning fuzzy set theory, which of the following is not a fuzzy operator?	
Option A:	XOR	
Option B:	AND	
Option C:	OR	

15.The truth values in fuzzy logic are Option A:Option B:either 0 or 1Option D:between 0 and 1, both exclusiveOption D:between 0 and 1, both inclusiveOption D:between 0 and 1, both inclusiveOption D:between 0 and 1, both inclusive16.Consider a 3-input neuron with weights 1, 2, and 3. The transfer function is linear with the constant of proportionality being equal to 2. The inputs are 3, 2 and 1 respectively. What will be the output?Option A:10Option D:20Option C:30Option D:4017.Which operator is used to avoid local minima?Option D:CrossoverOption D:Cross-site18.The chromosomes with bigger fitness value will be selected more times. This statement is true for:Option D:Steady-State SelectionOption D:Steady-State SelectionOption D:Elitism19.019.019.020.0Option C:X = 1.09Option B:X = 3.03Option C:X = 3.00Option C:X = 3.00Option C:X = 3.00Option D:X = 2.0020.Which of the following is not the characteristic property for representation of knowledge in Artificial Intelligence?	Option D:	NOT	
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20. knowledge in Artificial Intelligence?	Option D:	X = 2.00	
20. knowledge in Artificial Intelligence?			
	20.		
	Option A:		

Option B:	Representational Adequacy	
Option C:	Representational Verification	
Option D:	: Inferential Efficiency	

Q2. A	Solve any Two out of Three	05 marks ea	ch
i.	Analyze and describe applications of Artificial Intelligence for A	griculture.	
ii.	Differentiate Soft Computing and Hard Computing.		
iii.	Explain different encoding methods in Genetic Algorithms.		
Q2. B	Solve any One out of Two	10 marks eac	ch
i.	Consider the following multilayer feed-forward neural network rate be 0.9. The initial weight and bias values of the network are below, along with the first training tuple, $X = (1, 0, 1)$, whose Calculate the net input, output and error of each unit in hidder once the tuple is fed into the network. Also show updated value bias after first iteration calculating the error. $x_1 \underbrace{1}_{w_{15}} \underbrace{1}_{w_{24}} \underbrace{1}_{w_{25}} \underbrace{1}_{w_{36}} \underbrace{1}_{w_{56}} \underbrace{1}_{w_{56}} \underbrace{1}_{w_{56}} \underbrace{1}_{w_{36}} \underbrace{1}_{w_{35}} \underbrace{1}_{w_{35}} \underbrace{1}_{w_{35}} \underbrace{1}_{w_{35}} \underbrace{1}_{w_{36}} \underbrace{1}_{w_{35}} \underbrace{1}_{w_{36}} \underbrace{1}_{w_{35}} \underbrace{1}_{w_{36}} \underbrace{1}_{w_{36}}$	given in the taller class label is and output large of weights a $\theta = \frac{\theta^2}{\theta^3}$	ble 1. yer and
ii.	Explain any one method for defuzzification using example.		

Q3. A	Solve any Two out of Three 05 marks each
i.	Analyse Travelling Salesman Problem and identify suitable Genetic Algorithm components for it.
ii.	 Differentiate supervised and unsupervised learning. For solving each of the below use cases, state whether to use supervised or unsupervised learning algorithm and justify it. i. Understand consumer behaviour on your website that leads to a product getting purchases ii. Predicting customer churn based on past records iii. Segment banking customers on whether or not they will default on a loan based on the records of previous customers
iii.	Write the sequence of steps taken in designing a fuzzy logic machine.
Q3. B	Solve any One out of Two 10 marks each

i.	Consider the problem of maximizing the function $f(x) = x^2$ where x is permitted to vary between 0 to 31. Solve the example using Genetic Algorithm and demonstrate the best offspring after the first generation
ii.	Explain Backpropagation algorithm in detail. Argue why weights are modified in Neural Networks.

University of Mumbai Examination 2021 under Cluster KJSIEIT Examinations Commencing from 22nd April 2021 to 30th April 2021 Program: Computer Engineering

Curriculum Scheme: Rev2019

Examination: M.E. (Artificial Intelligence) Semester I

Course Code: MEAIC101 and Course Name: Building Blocks of Artificial Intelligence

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Time: 2 hours

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Max. Marks: 80

Question Number	Correct Option
Q1.	С
Q2.	В
Q3.	D
Q4	В
Q5	В
Q6	С
Q7	А
Q8.	D
Q9.	В
Q10.	А
Q11.	D
Q12.	С
Q13.	D
Q14.	А
Q15.	D
Q16.	В
Q17.	С
Q18.	А
Q19.	А
Q20.	С