

University of Mumbai Examination 2020

Program: Computer Engineering : SEM VII R2016 scheme CBCGS

Curriculum Scheme: Rev2016

Examination: BE Semester VII

Course Code: CSC703 and Course Name: Artificial Intelligence and Soft Computing

Time: 80 Mins. (16.10-17.30)

Max. Marks: 40

* Required

1. Email *

2. Exam Seat No: *

3. Name of Student: *

4. Name of Examination: *

Mark only one oval.

☐ R16(CBCGS)

5. Name of Course: *

6. Semester: *

7. Name of Subject: *

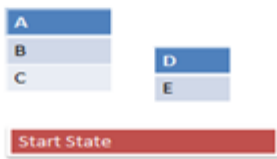
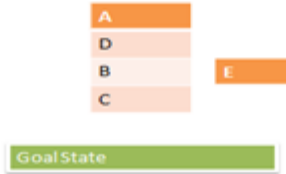
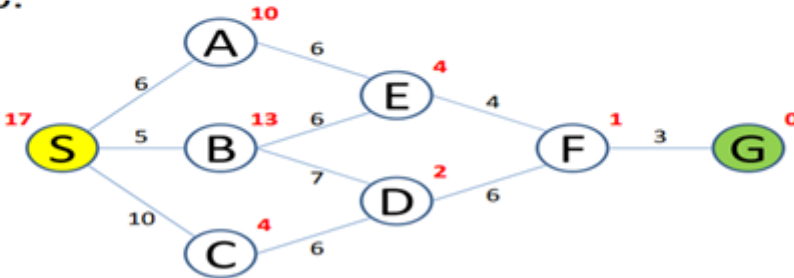
8. Exam Date: *

Mark only one oval.

☐ 13/01/2021

Descriptive Questions

Combine answers of 2A and 2B in one single PDF.

Q2A	Solve any Two	5 marks each
i.	Give PEAS Description of Online Teaching. Explain which type of agent is required for the same.	
ii.	<p>Consider the following initial state and the goal state for a block world problem. Solve the problem using Hill Climbing algorithm, so as to reach from initial state to the goal state. Consider</p> <p>$h_1(n)$ – Add 1 if block is on correct block/ goal pattern, Subtract 1 if on wrong block and</p> <p>$h_2(n)$ - Add 1 for every block in a correct structure that the block is sitting on, subtract 1 for every block</p> <p>Note down your observations after solving for h_1 and h_2</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Start State</p> </div> <div style="text-align: center;"> <p>Blocks problem</p>  <p>Goal State</p> </div> </div>	
iii.	<p>Solve the below graph by using A* search algorithm. Consider S to be the start node and G is the goal node. The heuristics values and the distance between the nodes are given in the graph.</p> 	

9. *

Q2 B	Solve any One	10 marks each
i.	Consider the following axioms: 1. Every child loves Santa. 2. Everyone who loves Santa loves any reindeer. 3. Rudolph is a reindeer, and Rudolph has a red nose. 4. Anything which has a red nose is weird or is a clown. 5. No reindeer is a clown. 6. Scrooge does not love anything which is weird. 7. (Conclusion) Scrooge is not a child. Solve by resolution.	
ii.	What is perceptron? Give a perceptron model for XOR and AND gate.	

Files submitted:

10. Q.3 *

Q3	
A	Solve any Two 5 marks each
i.	<p>For the following network calculate the net input given to the output neuron.</p> <div><pre>graph LR; i1[0.3] --> x1((x1)); i2[0.5] --> x2((x2)); i3[0.6] --> x3((x3)); x1 -- 0.2 --> y((y)); x2 -- 0.1 --> y; x3 -- -0.3 --> y; y --> out[y];</pre></div>
ii.	Explain Genetic algorithm steps.
iii.	Write a note on ANFIS system.
B	Solve any One 10 marks each
i.	<p>Consider two inputs I1 and I2. These two inputs have the following linguistic states: I1 : L(low), M(Medium), H(High) I2 : NR(Near), FR (Far), VF(Very Far) The output of any i-th rule can be expressed by the following: $y_i = f(I1, I2) = a_{ji} I1 + b_{ki} I2$; where, $j, k = 1, 2, 3$. Suppose: $a_{1i} = 1, a_{2i} = 2, a_{3i} = 3$ if $I1 = L, M$ and H, respectively. $b_{1i} = 1, b_{2i} = 2, b_{3i} = 3$ if $I2 = NR, FR$, and VF, respectively. Calculate the output of FLC for $I1 = 6.0$ and $I2 = 2.2$ using Takagi and Sugeno approach.</p>
ii.	Explain Spare tire problem using conditional planning.

Files submitted:

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