Faculty of Engineering Technology
Semester End Examination Question Paper-B.Tech

Department	**: Computer Science and Engineering**
Programme	**: B.Tech**
Semester / Batch	**: 6th / 2018**
Date of Examination	**: 12/07/2021**
Course Code	**: 19CSC312A**
Course Title	**: Artificial Intelligence**

Semester End Examination-Theory

INSTRUCTIONS TO STUDENTS:

1. **Answer Q.No.1 and Q.No. 2**
2. **Answer any 2 from Q.No.3, Q.No.Q4 and Q.No.Q5**
3. Use only SI units
4. Use of non-programmable scientific calculator is permitted
5. Use of data handbook permitted wherever applicable
6. Missing data may be appropriately assumed
7. Notations used have usual meaning
8. Send the scanned answer script to **XXXXXX@msruas.ac.in/upload to ERP** within the prescribed time
9. Retain the original answer scripts and submit it to department without fail

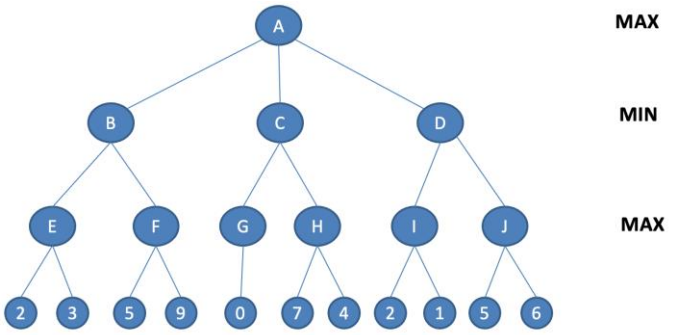
Total Duration: 2 Hours **Maximum Marks: 50**

IMPORTANT:
You may retain the question paper for future reference

For the sub-questions 1.1 -1.10, multiple choices are indicated as possible answers. You are supposed to pick and write any one of the choices as your answer in the answer booklet. (Each sub-question carries ½ (half) mark)

Q. No.	Question	Marks
1	**1.1** AI Systems _____. (a) Think like humans (b) Act like humans (c) Think like humans rationally (d) Think and act like humans rationally. **1.2** In essence, an AI Agent is a function from perception of _____ to _____. (a) Present, Actions (b) Past, actions (c) Histories, actions (d) Percepts, Actions. **1.3** PEAS stands for: (a) Practical Measure, Environment, Actions, Sensors (b) Performance, Environment, Actions, Sensors	**05**

	(c) Performance, Environment, Actuators, Sense (d) Performance Measure, Environment, Actuators, Sensors **1.4** _____ maximises expected performance of an Agent. (a) Rationality (b) Environment (c) Efficient mechanism (d) Harsh environment **1.5** An Agent which knows the actual outcome of its actions and acts accordingly is called a/an _____. (a) Intelligent Agent (b) Clairvoyant Agent (c) Omniscient Agent (d) Interactive Agent **1.6** Task Environments of a Taxi Driving on a road are: (a) Partially Observable, Single Agent, Deterministic, Sequential, Dynamic, Continuous (b) Partially Observable, Multi Agent, Stochastic, Sequential, Dynamic, Continuous (c) Partially Observable, Multi Agent, Deterministic, Sequential, Dynamic, Continuous (d) Partially Observable, Single Agent, Stochastic, Sequential, Dynamic, Continuous **1.7** In Tree Search, a **Frontier** / **Open List** is the set of leaf nodes which are _____ . (a) Available for expansion (b) Already expanded (c) Not yet generated (d)Not available for expansion **1.8** Breadth First Search is not optimal when _____. (a) Step costs are same (b) Step costs are different (c) More than 50% step costs are same (d) More than 50% step costs are different **1.9** Uniform Cost Search continues till _____. (a) A goal is found (b) Optimal path to a goal is found (c) A pre-determined depth is reached (d) A pre-determined breadth is reached **1.10** The value of heuristic function **h(n)** in Informed Search Algorithms is _____, where **n** is the Goal Node. (a) 0 (b) 1 (c) -1 (d) ∞	
2	(a) Discuss the causes of **uncertainty** in the Real World and the need for **Probabilistic Reasoning**. (b) State and explain the general expression of **Baye's Rule**.	**03+02**
3	(a) Discuss PEAS of an Internet Shopping Agent. (b) Explain the components of Problem Formulation. (c) Discuss the details of an Expert System with two examples.	**05+05+10**

4	(a) State and explain the **General Tree Search** Algorithm. Discuss the **parameters** of **Space** and **Time** complexity of a Search Strategy / Tree Search. (b) State and Explain a Knowledge Based Agent Algorithm. (c) Solve the following graph using Alpha-beta pruning algorithm. Mention step wise diagrams (stating Alpha, State and Beta values in each state). 	**07+03+10**
5	(a) State and explain Hill Climbing Search Algorithm. Discuss the problems associated with it. (b) Compare supervised, unsupervised and reinforcement learning algorithm with examples. (c) Compare classification and clustering with examples.	**10+06+04**

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