

University of Mumbai

Program: **INFORMATION TECHNOLOGY**

Curriculum Scheme: Rev 2016

Examination: BE Semester VII

Course Code: ITC703 and Course Name: Artificial Intelligence

Time: 2-hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which of the following is not covered by AI?
Option A:	Linguistic
Option B:	Economics
Option C:	Philosophy
Option D:	Nature Drawing
2.	Which of the following sentence/s is/are true? I Rational agent not only do the said task but also learn from its percept history. II Rational agent thinks logically III Rational agent acts only based what he perceives.
Option A:	Only I
Option B:	I and II
Option C:	II and III
Option D:	Only II
3.	Consider an example of ALEXA, what kind of environment it required to perform well.
Option A:	Fully Observable, Deterministic, Episodic, Dynamic, Discrete
Option B:	Partially Observable, Stochastic, Episodic, Dynamic, Discrete
Option C:	Partially Observable, Stochastic, Sequential, Dynamic, Continuous
Option D:	Partially Observable, Stochastic, Sequential, Dynamic, Discrete
4.	What is MINIMAX value of a game tree of Tic-Tac-Toe
Option A:	Win
Option B:	Draw
Option C:	Loose
Option D:	Withdraw
5.	Which statement is true: I- A* is complete and admissible II- A* search algorithm's time complexity is more than DFS III- A* search algorithm's time and space complexity depends on heuristic function
Option A:	I and II
Option B:	II and III
Option C:	I and III
Option D:	Only I

6.	Which of the following is the important property of CSP?
Option A:	Commutative
Option B:	Constraint propagation
Option C:	Forward checking
Option D:	Incremental
7.	Every rat has a tail, can be represented as
Option A:	$\exists x \text{ has}(x, \text{tail})$
Option B:	$\forall x \text{ has}(x, \text{tail})$
Option C:	$\exists x \text{ rat}(x) \rightarrow \text{has}(x, \text{tail})$
Option D:	$\forall x \text{ rat}(x) \rightarrow \text{has}(x, \text{tail})$
8.	Which of the following is not a type of plan?
Option A:	Partial order
Option B:	Conditional
Option C:	Unconditional
Option D:	Hierarchical
9.	Probabilities express
Option A:	the agent's inability to reach a definite decision regarding the truth of a sentence, and summarize the agent's beliefs.
Option B:	the agent's ability to reach a definite decision regarding the truth of a sentence, and summarize the agent's beliefs.
Option C:	the agent's inability to reach an indefinite decision regarding the truth of a sentence, and summarize the agent's beliefs.
Option D:	the agent's ability to reach an indefinite communication regarding the truth of a sentence, and summarize the agent's beliefs.
10.	What types of problems are solved by supervised learning?
Option A:	Descriptive analysis problem
Option B:	Grouping of similar items
Option C:	Classification or regression problems
Option D:	Quantification

Q2	Solve any Two Questions out of Three	10 marks each
A	What do you mean by Uninformed, Informed and Local Search Algorithms? Discuss the OPEN and CLOSED List as the algorithm DFS and BFS progresses.	
B	<p>1. Convert the following to predicates: 6 marks</p> <p>a. Bina makes tea if she has honey otherwise makes coffee. b. Coffee is a bitter drink. c. Bina has honey.</p> <p>Will Bina make a bitter drink? Use backward reasoning.</p> <p>4 marks</p>	4

C	Explain different components of Natural Language processing? Also, explain different levels of knowledge used in language understanding?
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Q3.	Solve any Two Questions out of Three	10 marks each
A	<p>What is Constraint Satisfaction Problem? What would be the constraints for the crypto arithmetic problem described in below figure. Solve it.</p> <pre style="margin-left: 40px;"> FOVE + XEVEN + FOVE ----- MAOKU </pre>	
B	Plan and explain spare tire changing.	
C	Explain inferencing in Belief network with example.	

Q4.	Solve any Two Questions out of Three	10 marks each
A	Explain Supervised Learning	
B	Explain A* Algorithm.	
C	List all types of Agents and Draw and Explain Learning Agent.	