University of Mumbai
Examination 2020

Program: **Information Technology**

Curriculum Scheme: Rev-2016

Examination: SE Semester - VII

Course Code: ITC703   Course Name: Artificial Intelligence

Time: 2 hour   Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks 2 marks each
1.	What is the rule of simple reflex agent?
Option A:	Simple-action rule
Option B:	Condition-action rule
Option C:	Simple & Condition-action rule
Option D:	None of the mentioned
2.	Which agent deals with happy and unhappy states?
Option A:	Simple reflex agent
Option B:	Model based agent
Option C:	Learning agent
Option D:	Utility based agent
3.	What is State Space?
Option A:	The Whole Problem
Option B:	Your Definition to a Problem
Option C:	Representing your Problem with Variable and Parameter
Option D:	A space where you know the solution
4.	Complete history of Environment that agent has perceived is called _____.
Option A:	Percept Sequence
Option B:	Agent Function
Option C:	Agent Program
Option D:	Agent Architecture
5.	An Agent is composed of _____.
Option A:	Agent Function
Option B:	Agent Program
Option C:	Architecture and Program
Option D:	Agent Architecture
6.	Which Element in Learning Agent is responsible for sensing environment and define a performance standard.
Option A:	Learning Element
Option B:	Performance Element
Option C:	Critic Element
Option D:	Problem Generator

7.	Which Element in Learning Agent is responsible for suggesting actions that will lead to provide better solution.
Option A:	Learning Element
Option B:	Performance Element
Option C:	Critic Element
Option D:	Problem Generator
8.	The famous spare tire problem or Scheduling classes for bunch of students or Air cargo transport are the best example of
Option A:	Planning Problem
Option B:	Partial Order Planning
Option C:	Hierarchical Planning
Option D:	None of the above.
9.	There exist only two types of quantifiers, Universal Quantification and _____ Quantification.
Option A:	Existent
Option B:	Existential
Option C:	Exceptional
Option D:	Expectional
10.	What are you predicating by the logic: $\forall$x: $\exists$y: loyalto(x, y).
Option A:	Everyone is loyal to someone
Option B:	Everyone is loyal to all
Option C:	Everyone is not loyal to someone
Option D:	Everyone is loyal
11.	Uncertainty arises in the wumpus world because the agent's sensors give only _____
Option A:	Full and Global Information
Option B:	Partial and Global Information
Option C:	Partial and Local Information
Option D:	Full and Local Information
12.	Heuristic function h(n) is _____
Option A:	Lowest path cost
Option B:	Cheapest path from root to goal node
Option C:	Estimated cost of cheapest path from root to goal node
Option D:	Average path cost
13.	From which rule does the modus ponens are derived?
Option A:	Inference Rule
Option B:	Module Rule
Option C:	Both Inference and Module Rule
Option D:	Alpha and Beta Rule

14.	What is State Space?
Option A:	The Whole Problem
Option B:	Your Definition to a Problem
Option C:	Representing your Problem with Variable and Parameter
Option D:	A space where you know the solution
15.	What is the rule of simple reflex agent?
Option A:	Simple Rule
Option B:	Condition Action Rule
Option C:	Condition Rule
Option D:	Action Rule
16.	Which is used to provide the feedback to the learning element?
Option A:	Critic
Option B:	Problem Generator
Option C:	Learning Element
Option D:	Performance Element
17.	Which is the best way to go for Game playing problem?
Option A:	Linear Approach
Option B:	Heuristic Approach
Option C:	Random Approach
Option D:	Optimal Approach
18.	Forward State Space Search is also called as _____
Option A:	Regression Planning
Option B:	Progression Planning
Option C:	Partial Order Planning
Option D:	Hierarchical Planning
19.	Which search strategy is also called as blind search?
Option A:	Informed Search
Option B:	Uninformed Search
Option C:	Both of the above
Option D:	None of the above
20.	A* algorithm is based on _____
Option A:	Breadth First Search
Option B:	Depth First Search
Option C:	Hill Climbing Search
Option D:	Best First Search

Q2	Solve any Four out of Six	5 marks each
A	Solve the given problem using Crypt arithmetic method : SEND + MORE = MONEY	
B	Explain different definitions of Artificial Intelligence according to different categories.	
C	Explain components of a Cognitive Computing System.	
D	Explain Utility Based Agent with Block Diagram.	
E	Explain Knowledge based Agent.	
F	Explain problems in Hill Climbing Algorithm.	

Q3.		
A	**Solve any Two**	**5 marks each**
i.	What is PEAS Descriptors? Give PEAS Descriptors for Taxi Driver Agent.	
ii.	Explain different Components of Natural Language Processing. Also explain different Levels of Knowledge used in Language understanding.	
iii.	Write shorts on: Forward Chaining and Backward Chaining.	
B	**Solve any One**	**10 marks each**
i.	Differentiate between Informed and Uninformed Search Techniques. Also explain A* Algorithm in detail.	
ii.	Given a full 4 gallon jug and an empty 3 gallon jug, the goal is to fill the 4 gallon jug with exactly 2 gallons of water. Give state space representation along with condition action rules.	