

# University of Mumbai

Program: **Information Technology**  
Curriculum Scheme: Rev2016 CBCGS  
Examination: BE Semester VII

Course Code: ITC703 and Course Name: Artificial Intelligence

Time: 2 hour

Max. Marks: 80

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<b>Q1.</b>	<b>Choose the correct option for following questions. All the Questions are compulsory and carry equal marks</b>
1.	The book “The Theory of Games and Economic Behaviour” was written by_____.
Option A:	John Von Neumann and Oskar Morgenstern
Option B:	John Nash and John Von Neumann
Option C:	Herbert Simon and John McCarthy
Option D:	John McCarthy and Oskar Morgenstern
2.	The technique Mainly focuses on how to represent the known facts. Name the technique
Option A:	Knowledge representation
Option B:	Automated reasoning
Option C:	Machine Learning
Option D:	Natural Language Processing(NLP)
3.	Which of the following functions replaces utility function while dealing with imperfect real-time decisions?
Option A:	Perfect function
Option B:	Terminal function
Option C:	Cut off function
Option D:	Evaluation function
4.	Which of the following statements best describes the need for the emergence of game theory?
Option A:	To evolve a suitable mathematical model for economics
Option B:	To solve the problems being faced by AI
Option C:	To design optimal strategies for board games
Option D:	To solve real-world problems involving rational agents
5.	Which of the following is an example of a simultaneous game?
Option A:	Chess
Option B:	Go
Option C:	Dictator game
Option D:	Securities trading
6.	What could possibly be the environment of a satellite image analysis system?
Option A:	Computers in space and earth
Option B:	Image categorisation techniques
Option C:	Statistical data on image pixel intensity value and histograms

Option D:	All of the above
7.	Which of the following performance measures is taken by Decision Tree to reach an output?
Option A:	No Test
Option B:	Single Test
Option C:	Two Test
Option D:	Sequence of Test
8.	What performance measure needs to be updated to enhance decision-making power?
Option A:	Learning element
Option B:	Varying elements
Option C:	Performance measuring elements
Option D:	Cost-based elements
9.	In which of the following types of knowledge-based system the outputs are generated on applying an algorithm?
Option A:	Expert system
Option B:	Neural network
Option C:	Genetic algorithm
Option D:	Data mining
10.	In which of the following methods of acquiring knowledge, there is minimal or no role of expert and the knowledge engineer?
Option A:	Manual methods
Option B:	Semi-automatic methods
Option C:	Automatic methods
Option D:	Both a and b
11.	What is state space?
Option A:	The whole problem
Option B:	Your definition to a problem
Option C:	Problem you design
Option D:	Representing your problem with variable and parameter
12.	What is a semantic network?
Option A:	It is a way of representing a knowledge
Option B:	It is a data structure
Option C:	It is a data type
Option D:	It is a network within a network
13.	Who is responsible for gathering knowledge from various sources to build an expert system?
Option A:	Experts
Option B:	Users
Option C:	Knowledge engineers
Option D:	Organisations building expert systems
14.	In prisoner's dilemma, which of the following scenarios represents Nash equilibrium?
Option A:	When both the prisoners do not confess
Option B:	When either of the prisoners confesses
Option C:	When both the prisoners confess

Option D:	Both a and b
15.	_____ is the process of extracting rules from a set of observations.
Option A:	Rule induction
Option B:	Rule extraction
Option C:	Knowledge representation
Option D:	Knowledge validation
16.	In which of the following methods, an expert is asked to verbalise his thought process while solving a problem or making a decision?
Option A:	Protocol analysis
Option B:	Repertory Grid Analysis
Option C:	Knowledge discovery
Option D:	Observations
17.	Which of the following functions converts non-terminal nodes into terminal nodes?
Option A:	Pay-off function
Option B:	Heuristic evaluation function
Option C:	Utility function
Option D:	Rational function
18.	Which of the following method of acquiring knowledge was developed by George Kelly in 1955?
Option A:	Protocol analysis
Option B:	Repertory Grid Analysis
Option C:	Knowledge discovery
Option D:	Observations
19.	In which of the following scenarios, a branch is pruned in the alpha-beta algorithm?
Option A:	When alpha is greater than beta.
Option B:	When alpha is greater than or equal to beta.
Option C:	When alpha is equal to beta.
Option D:	When beta is greater than or equal to alpha.
20.	Web crawler is a/an_____.
Option A:	Intelligent goal-based agent
Option B:	Problem-solving agent
Option C:	Simple reflex agent
Option D:	Model based agent

<b>Q2</b>	<b>Solve any Two Questions out of Three 10 marks each</b>
A	What is Prolog? What do you mean by Structure in Prolog?

	Write a Prolog Program for family information systems.
B	Explain Planning in AI. Compare and contrast between Partial Order Planning and Conditional Planning. Also explain the real time application of hierarchical planning.
C	Explain Hill Climbing and Simulated Annealing with suitable example.

<b>Q3.</b>	<b>Solve any Two Questions out of Three 10 marks each</b>
A	What is heuristic function? Explain 8 puzzle problem. Explain the PEAS descriptor of Wumpus world problem.
B	Differentiate between Informed and Uninformed search techniques. Also explain A* algorithm with suitable example
C	What is uncertainty ? Explain Bayesian Network with example