

Mid Term Assignment
Spring 2020
Subject: Artificial Intelligence
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BS cs

Section A

Question No: 1 (Marks: 1) - Please choose one

Most of the solution spaces for problems can be represented in a _____

- A. Graph
- B. Table
- C. Demo

Question No: 2 (Marks: 1) - Please choose one

By getting grips on _____ that deal with searching techniques in graphs and trees, problem solving can be performed in an efficient manner.

- A. Pseudocode
- B. Algorithms
- C. Charts
- D. Graphs

Question No: 3 (Marks: 1) - Please choose one

Every graph can be converted into a tree.

- A. True
- B. False

Question No: 4 (Marks: 1) - Please choose one

In Breadth First Search the node with the largest value of height will be at the ___ priority to be picked.

- A. Maximum
- B. Minimum
- C. None of the given

Question No: 5 (Marks: 1) - Please choose one

Breadth-First Search checks all paths of a given length before moving on to any longer paths.

- A. True
- B. False

Question No: 6 (Marks: 1) - Please choose one

Breadth-first search is a good idea when you are confident that the branching factor is

- A. Extremely small
- B. Small

- C. Medium
- D. Large

Question No: 7 (Marks: 1) - Please choose one

The foot hill problem occurs whenever there are _____ peaks.

- A. High
- B. Secondary
- C. Primary
- D. Deep

Question No: 8 (Marks: 1) - Please choose one

The Plateau problem comes up when there is a mostly flat area _____ the peaks.

- A. Separating
- B. Joining
- C. Over
- D. None of the given

Question No: 9 (Marks: 1) - Please choose one

Which one of the problem is more subtle, and consequently, is more frustrating:

- A. Foothill problem
- B. Plateau
- C. Ridge
- D. Box

Question No: 10 (Marks: 1) - Please choose one

The paths found by best-first search are likely to be _____ than those found with other methods.

- A. None of the given
- B. Shorter
- C. Longer

Question No: 11 (Marks: 1) - Please choose one

In Basic Genetic Algorithm the term mutation refers to a small random _____.

- A. Number
- B. Change
- C. Operator
- D. Operand

Question No: 12 (Marks: 1) - Please choose one

Which of the following two components are closely coupled and each is intrinsically tied to the other.

- i. Knowledge representation
 - ii. Reasoning
 - iii. Execution
 - iv. Planning
- A. i & iii

- B. ii & iii
- C. iii & iv
- D. i & ii

Question No: 13 (Marks: 1) - Please choose one

Semantic networks are graphs, with nodes representing _____ and arcs representing _____ between objects.

- A. objects, relationships
- B. relationships, distance
- C. objects, distance
- D. distance, relationships

Question No: 14 (Marks: 1) - Please choose one

A proposition is the statement of a _____.

- A. Fact
- B. Equation
- C. Action
- D. Theorem

Question No: 15 (Marks: 1) - Please choose one

_____ reasoning is based on forming, or inducing a 'generalization' from a limited set of observations.

- A. Deductive
- B. Abductive
- C. Inductive
- D. Analogical

Question No: 16 (Marks: 1) - Please choose one

An _____ is "A computer program designed to model the problem solving ability of a human expert."

- A. Expert system
- B. Intelligent System
- C. Echo System
- D. Energy System

Question No: 17 (Marks: 1) - Please choose one

Another expert system named _____ was developed by Digital Equipment Corporation, as a computer configuration assistant.

- A. R1/XCON
- B. MYCIN
- C. Dendral
- D. R3/XCON

Question No: 18 (Marks: 1) - Please choose one

An expert system may replace the expert or assist the expert.

- A. True
- B. False

Question No: 19 (Marks: 1) - Please choose one

Conventional programming focuses on _____, while ES programming focuses on _____

- A. Solution, Problem
- B. Problem, Solution
- C. Problem, Expert
- D. Solution, Expert

Question No: 20 (Marks: 1) - Please choose one

In backward chaining terminology, the hypothesis to prove is called the _____.

- A. Proof
- B. Goal
- C. Plan
- D. None of the given

Section B

Question No: 21 (Marks: 2)

Give definition of Expert System.

solution:

An expert system is a computer program that uses artificial intelligence technologies to simulate the judgment and behaviour of a human or an organization that has expert knowledge and experience in a particular field.

Question No: 22 (Marks: 2)

What is depth first search? give priority function for it.

solution:

Depth first search is an algorithm for traversing and searching tree and graphs. Depth first search is an uninformed search progressed by expanding the first child node of the tree and thus going deeper and deeper until a goal is found. We will use same simple search algorithm to implementation of DFS by this function priority $(P_n) = 1 / \text{high}(n)$

Question No: 23 (Marks: 3)

Write down at least 5 names for the application fields of Genetic Algorithm.

solution:

composing music, genetic programming, robotic gaming, marketing strategy, industrial optimization

Question No: 24

(Marks: 2)

Discuss backward chaining with the help of doctor and patient example.

solution:

Let us first understand the definition of backward chaining:

This is defined to be a logical process meant for inferring with that of the unknown fact from among the known conclusion by going back from that of the solution for understanding the initial condition as well as their rule. This is mostly to be used in Artificial intelligence.

Example:

Doctor would treat a patient and then the patient recovers because of the treatment given by the doctor, and after several treatment and processes of treatment