



## BRAINWARE UNIVERSITY

### Term End Examination 2020 - 21

Programme – Bachelor of Technology in Computer Science & Engineering

Course Name – Artificial Intelligence

Course Code - BCSE504B

Semester / Year - Semester V

Time allotted : 85 Minutes

Full Marks : 70

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A

(Multiple Choice Type Question)

1 x 70=70

1. *(Answer any Seventy)*

(i) Which instruments are used for perceiving and acting upon the environment?

- |                          |                  |
|--------------------------|------------------|
| a) Sensors and Actuators | b) Sensors       |
| c) Perceiver             | d) None of these |

(ii) What is the rule of simple reflex agent?

- |  |                          |
|--|--------------------------|
| a) Simple-action rule                              | b) Condition-action rule |
| c) Both Simple-action rule & Condition-action rule | d) None of these         |

(iii) What are the composition for agents in artificial intelligence?

- |                                |                  |
|--------------------------------|------------------|
| a) Program                     | b) Architecture  |
| c) Both Program & Architecture | d) None of these |

(iv) Which is used to improve the agents performance?

- |               |                  |
|---------------|------------------|
| a) Perceiving | b) Learning      |
| c) Observing  | d) None of these |

(v) How many types of agents are there in artificial intelligence?

- |      |      |
|------|------|
| a) 1 | b) 2 |
|------|------|

c) 3

d) 4

(vi) In which agent does the problem generator is present?

a) Learning agent

b) Observing agent

c) Reflex agent

d) None of these

(vii) Where the next state and the action of an agent of the environment is fully obtained based on the current state?

a) Deterministic environment

b) Episodic environment

c) Non-deterministic environment

d) None of these

(viii) Turing Test is used for \_\_\_\_\_.

a) Measuring the success of an intelligent behavior of a system

b) Measuring the fault of an intelligent behavior of a system

c) Measuring the capacity of an intelligent behavior of a system

d) None of these

(ix) An ideal rational agent is capable of doing expected actions to optimize its performance measure, based on \_\_\_\_\_.

a) Its percept sequence and built-in knowledge base

b) Its percept sequence and built-in environment base

c) Its percept sequence and built-in performance base

d) None of these

(x) Driving is belongs to which category of environment?

a) Discrete

b) Continuous

c) Static

d) Dynamic

(xi) Where one real and other artificial agents are simultaneously tested on the basis of equal ground?

a) Utility based Test environment

b) Turing Test environment

c) Model based Test environment

d) None of these

(xii) When the environment is accessible to an agent, then \_\_\_\_\_.

- a) Sensors of that agent can have access to the complete state of the environment
- b) Sensors of that agent can have access to the partial state of the environment
- c) Sensors of that agent can have access to the selected state of the environment
- d) None of these

(xiii) Which search strategy is also called as blind search?

- a) Uninformed search
- b) Informed search
- c) Adversarial search
- d) All of these

(xiv) The Set of actions for a problem in a state space is formulated by a \_\_\_\_\_.

- a) Intermediate state
- b) Initial state
- c) Successor function, which takes current action and returns next immediate state
- d) None of these

(xv) Adversarial search uses which type of agent?

- a) Co-operative multi-agent
- b) Competitive multi-agent
- c) Co-operative single-agent
- d) Competitive single-agent

(xvi) The summation of initial state and goal state make a \_\_\_\_\_.

- a) Problem Space
- b) Problem instance
- c) Problem Space Graph
- d) None of these

(xvii) State space in artificial intelligence belongs to \_\_\_\_\_.

- a) complete problem
- b) your definition to a problem
- c) Problem that you design
- d) Representing your problem with variable and parameter

(xviii) Which agent enables the deliberation about the computational entities and actions?

- a) Hybrid
- b) Reflective
- c) Relational
- d) None of these

(xix) Forward reasoning is \_\_\_\_\_ .

- a) Data driven
- b) Goal driven
- c) Knowledge driven
- d) Resolution driven

(xx) \_\_\_\_\_ is an algorithm, a loop that continually moves in the direction of increasing value that is uphill

- a) Up-Hill Search
- b) Hill-Climbing
- c) None of these
- d) Reverse-Down- Hill search

(xxi) Best-First search can be implemented using \_\_\_\_\_ data structure

- a) Queue
- b) Stack
- c) Priority Queue
- d) Circular Queue

(xxii) What is the heuristic function of greedy best-first search?

- a)  $f(n) \neq h(n)$
- b)  $f(n) < h(n)$
- c)  $f(n) = h(n)$
- d)  $f(n) > h(n)$

(xxiii) Where does the value of alpha-beta search get updated?

- a) Along the path of search
- b) Initial state itself
- c) At the end
- d) None of these

(xxiv) Adversarial search problems uses \_\_\_\_\_

- a) Competitive Environment
- b) Cooperative Environment
- c) Neither Competitive Environment nor Cooperative Environment
- d) All of these

(xxv) DFS is \_\_\_\_\_ efficient and BFS is \_\_\_\_\_ efficient

- a) Space, Time
- b) Time, Space

c) Time, Time

d) Space, Space

(xxvi) Hill-Climbing approach stuck for the following reason(s)

a) Local maxima

b) Ridges

c) Plateau

d) All of these

(xxvii) For calculating objective function in 8 puzzle problem using A\* algorithm, estimated cost from current state to goal state is calculated as.

a) No of misplaced tiles

b) No of correctly placed tiles

c) Depth of current state

d) None of these

(xxviii) Value of utility function for representing state space diagram for tic-tac-toe are

a) 1,2,0

b) 1,-1,0

c) 1,1,1

d) -1,-1,0

(xxix) BFS uses which data structure?

a) Stack

b) Queue

c) Priority queue

d) Linked list

(xxx) The adjective “first-order” distinguishes first-order logic from \_\_\_\_\_ in which there are predicates having predicates or functions as arguments, or in which one or both of predicate quantifiers or function quantifiers are permitted.

a) Representational Verification

b) Representational Adequacy

c) Higher Order Logic

d) Inferential Efficiency

(xxxi) Time complexity for bidirectional search is \_\_\_\_\_.

a)  $??/2$ (b: no. of node, d: depth)

b)  $??$ (b: no. of node, d: depth)

c)  $??/3$ (b: no. of node, d: depth)

d) (b: no. of node, d: depth)

(xxxii) The deficiency in uniform Cost Search \_\_\_\_\_.

- a) It has no information on goal location.
- b) It does not explore options in every direction.
- c) Hill climbing search
- d) None of these

(xxxiii) Space complexity for Uniform Cost search \_\_\_\_\_.

- a)  $b^d$  (b: no. of node, d: depth)
- b)  $b^{d/2}$  (b: no. of node, d: depth)
- c)  $b^{d/3}$  (b: no. of node, d: depth)
- d)  $b^{2d}$  (b: no. of node, d: depth)

(xxxiv) The form by which Constraint satisfaction problems on finite domains are solved \_\_\_\_\_.

- a) Search Algorithms
- b) Heuristic Search Algorithms
- c) Greedy Search Algorithms
- d) All of these

(xxxv) Flexible Constraint Satisfaction Problems relax on \_\_\_\_\_.

- a) Constraints
- b) Current State
- c) Initial State
- d) Goal State

(xxxvi) Fuzzy logic is a form of \_\_\_\_\_.

- a) Two-valued logic
- b) Crisp set logic
- c) Many-valued logic
- d) Binary set logic

(xxxvii) "John is very intelligent". This statement can be completely expressed in \_\_\_\_\_.

- a) FOPL
- b) Fuzzy logic
- c) Default logic
- d) Propositional logic

(xxxviii) Backward reasoning is \_\_\_\_\_.

- a) Data driven
- b) Goal driven
- c) Knowledge driven
- d) Resolution driven

(xxxix) How many logical connectives are there in artificial intelligence?

- a) 2
- b) 3
- c) 4
- d) 5

(xl) The room temperature is hot. Here the hot (use of linguistic variable is used) can be represented by \_\_\_\_\_

- a) Fuzzy set
- b) Crisp set
- c) Both fuzzy and crisp set
- d) None of these

(xli) Semantic Networks is

- a) A way of representing knowledge
- b) Data structure
- c) Data type
- d) None of these

(xlii) The process by which the brain incrementally orders actions needed to complete a specific task is referred as,

- a) Unorder planning
- b) Partial order planning
- c) Total order planning
- d) None of these

(xliii) Explanation-Based Learning(EBL) is example of

- a) Inductive learning
- b) Deductive learning
- c) Supervised learning
- d) Unsupervised learning

(xliv) Classification is a classic example of

- a) Semi-supervised learning models.
- b) Reinforcement learning models
- c) Supervised learning models.
- d) unsupervised learning models

(xlv) Regression is classic example of

- a) Semi-supervised learning models.
- b) Reinforcement learning models

c) supervised learning models.

d) unsupervised learning models

(xlvi) Which among the following is used to represent knowledgebase?

a) Logic

b) Frame

c) Semantic net

d) All of these

(xlvii) \_\_\_\_\_ transforms the fuzzy set obtained by the inference engine into a crisp value.

a) defuzzification Module

b) knowledge base

c) both of these

d) None of these

(xlvi) \_\_\_\_\_ starts with a general statement and examines the possibilities to reach a specific, logical conclusion.

a) Deductive Reasoning

b) Inductive Reasoning

c) Auditory Learning

d) None of these

(xlix) "All women of age above 65 years are grandmothers. Rina is 70 years. Therefore, Rina is a grandmother." \_\_\_\_\_ it belongs to

a) Deductive Reasoning

b) Inductive Reasoning

c) Auditory Learning

d) None of these

(l) NLP (with respect of AI) stands for

a) Natural Linear Processing

b) Natural Language Processing

c) Natural Linear Programming

d) Natural Language Programming

(li) How many components does Natural Language Processing (NLP) has?

a) 2

b) 3

c) 4

d) 5

(lii) A Horn clause is a clause with \_\_\_\_\_ .

a) at most one negative literal

b) at most two negative literal



c) at most one positive literal

d) at most two positive literal

(lii) Treating the word “board” as noun or verb is example of\_\_\_\_\_.

a) Lexical ambiguity

b) Syntax Level ambiguity

c) Referential ambiguity

d) None of these

(liv) A grammar that consists rules with a single symbol on the left-hand side of the rewrite rules\_\_\_\_\_.

a) Context sensitive grammar

b) Context free grammar

c) Pragmatic analysis

d) Semantic Analysis

(lv) Disadvantage of Top-Down parser\_\_\_\_\_.

a) is inefficient, as the search process has to be repeated if an error occurs

b) is inefficient, because complicate to implement

c) both of is inefficient, as the search process has to be repeated if an error occurs

d) none of these

& is inefficient, because complicate to implement

(lvi) What kind of ambiguity of the following “Rima went to Gauri. She said, “I am tired.”

a) Referential ambiguity

b) Lexical ambiguity

c) Syntax Level ambiguity

d) None of these

(lvii) Expert system without knowledge base called\_\_\_\_\_.

a) Shells

b) Tools

c) user interface

d) none of these

(lviii) In partial order plan. A. Relationships between the actions of the behavior are set prior to the actions B. Relationships between the actions of the behavior are not set until absolutely necessary Choose the correct option

a) A is true

b) B is true

- c) Either A or B can be true depending upon situation      d) None of these

(lix) What are you predicating by the logic:  $\forall x: \exists y: \text{loyalto}(x, y)$ .

- a) Everyone is loyal to someone      b) Everyone is loyal to all  
c) Everyone is not loyal to someone      d) Everyone is loyal

(lx) Which of the following option is true?

- a) If the Sun is a planet, elephants will fly      b)  $3 + 2 = 8$  if  $5 - 2 = 7$   
c)  $1 > 3$  and 3 is a positive integer      d)  $-2 > 3$  or 3 is a negative integer

(lxi) Let P: This is a great website, Q: You should not come back here. Then 'This is a great website and you should come back here.' is best represented by:

- a)  $\sim P \vee \sim Q$       b)  $P \wedge \sim Q$   
c)  $P \vee Q$       d)  $P \wedge Q$

(lxii) What S-expression consists of?

- a) Atoms and Lists      b) Numeric only  
c) Literals only      d) Atoms only

(lxiii) If X and Y are S-expression then (X.Y) is a/an \_\_\_\_\_

- a) S-expression      b) Atom  
c) List      d) Predicate

(lxiv) What will be the output of the following LISP statement? (print 'Atom)

- a) ATOM      b) A  
c) TOM      d) ATOM infinitely

(lxv) What is the output of the following LISP statement? (print 'list atom)

- a) LIST-ATOM      b) LIST

c) ATOM

d) Error

(lxvi) What is the output of the following LISP statement? (print '(list atom))

a) LIST-ATOM

b) LIST

c) ATOM

d) Error

(lxvii) Which of the following is part of basic syntax in LISP programming?

a) Primitive

b) +

c) NULL

d) #include

(lxviii) How many arguments do a single LISP program has?

a) One

b) Two

c) Any number of arguments

d) Three

(lxix) In the syntax (setf arg1 arg2), what is arg1?

a) Value to be set

b) Variable on which value is set

c) Set of lists

d) Set of elements forming a list

(lxx) NLU is

a) Natural Language Processing

b) Natural Language Understanding

c) Natural language Generation

d) None of these