

**ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY
SCHOOL OF ELECTRICAL ENGG. AND COMPUTING
UNDER GRADUATE PROGRAM (CSE 3rd YEAR)**

**MID TERM EXAMINATION
II - SEMESTER**

Course : INTRODUCTION TO ARTIFICIAL INTELLIGENCE

Max Marks : 25%

Course Code : CSE3206

Time Allowed : 1.45hrs.

Date of Exam: 12 – 06 – 2019

Name: _____

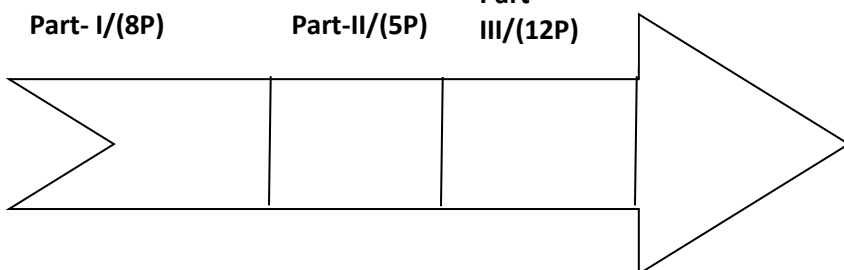
Id No.: _____

Group: _____ **Section:** _____

General Instructions:

1. Make sure that Mobile Phone is Switched Off.
2. Make sure the Question Paper contains 4 pages totally.
3. Write your answers for PART I, PART II and PART III in the specified given space.
4. Cheating is strictly forbidden, if found you will obtain Grade 'F'

For instructors use only

Part- I/(8P)	Part-II/(5P)	Part-III/(12P)	Total
			

All the best!!!

Part I. Choose the best answers of the following questions and put them in the space provided(0.5 pt. each)

- 2

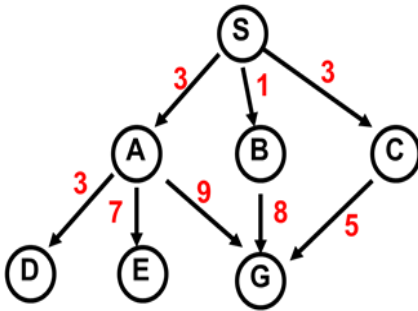
- //3//
- ____ 11. DFS is _____ efficient and BFS is _____ efficient.
- a) Space, Time
 - b) Time, Space
 - c) Time, Time
 - d) Space, Space
- ____ 12. What is the space complexity of Depth-first search?
- a) $O(b)$
 - b) $O(bl)$
 - c) $O(m)$
 - d) $O(bm)$
- ____ 13. A problem in a search space is defined by one of these states.
- a) Initial state
 - b) Last state
 - c) Intermediate state
 - d) All of the above
- ____ 14. For general graph, how one can get rid of repeated states?
- a) By maintaining a list of visited vertices(nodes)
 - b) By maintaining a list of traversed edges
 - c) By maintaining a list of non-visited vertices(nodes)
 - d) By maintaining a list of non-traversed edges
- ____ 15. What is the expansion if PEAS in task environment?
- a) Peer, Environment, Actuators, Sense
 - b) Perceiving, Environment, Actuators, Sensors
 - c) Performance, Environment, Actuators, Sensors
 - d) None of the mentioned
- ____ 16. The process of removing detail from a given state representation in modelling is called _____
- a) Extraction
 - b) Abstraction
 - c) Information Retrieval
 - d) Mining of data

Part II. Write “True” if the statement is correct and write “False” if the statement is incorrect(1 pt. each)

- ____ 1. Modeling exactly how humans actually think represents Turing’s theory of AI.
- ____ 2. Cognitive model of human reasoning involves in what people do (human behavior).
- ____ 3. The rational agent approach involves modeling how ideal agents “should act”.
- ____ 4. Searching is a process in which the problem-solving agent with several immediate options of unknown value can decide what to do by just examining different possible sequences of actions that lead to states of known value, and then choosing the best sequence.
- ____ 5. An optimal solution has the highest path cost among all solutions

Part III. Write short answers of the following questions

1. Assuming that G is the goal(solution), numbers on edges are cost and expansion is from left to right, answer the following questions based on the following figure
 - a) Show the expansion/search process (3 pts.)
 - b) Identify the search path (3pts),
 - c) Find the number of nodes expanded to reach the goal(3 pts.),
 - d) Find the cost in reaching the goal (3 pts.) for **BFS, DFS and Uniform Cost** search strategies.

**BFS (Show the expansion)**

- 1.
- 2.
- 3.

DFS (Show the expansion)

- 1.
- 2.
- 3.

UCS (Show the expansion)

- 1.
- 2.
- 3.