Name Date

AI UNIT TEST 2

1) Each Question is of 1 mark 2) Quiz contains 30 Questions

1. A heuristic is a way of trying *points: 1*

- ○ To discover something or an idea embedded in a program
- ○ To search and measure how far a node in a search tree seems to be from a goal
- ○ To compare two nodes in a search tree to see if one is better than the other
- ○ Only (a) and (b)
- ○ Only (a), (b) and (c)

2. Consider the following statements related to AND-OR Search algorithm. S1: A solution is a subtree that has a goal node at every leaf. S2: OR nodes are analogous to the branching in a deterministic environment. S3: AND nodes are analogous to the branching in a non-deterministic environment. Which of the following is true referencing the above statements? Choose the correct answer from the code given below: *points: 1*

- ○ S1 – False, S2 – True, S3 – True
- ○ S1 – True, S2 – True, S3 – False
- ○ S1 – True, S2 – True, S3 – True
- ○ S1 – False, S2 – True, S3 – False

3. tee+let=All where E=5 find A+L+L *points: 1*

- ○ 17
- ○ 9
- ○ 12
- ○ 10

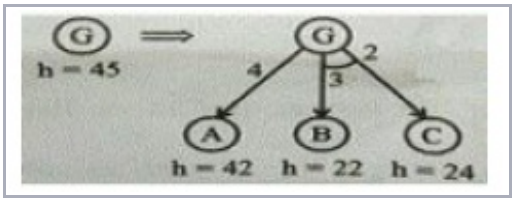
4. A* algorithm uses f ' = g + h' to estimate the cost of getting from the initial state to the goal state, where g is a measure of the cost of getting from initial state to the current node and the function h' is an estimate of the cost of getting from the current node to the goal state. To find a path involving the fewest number of steps, we should set *points: 1*

- ○ g = 1
- ○ g = 0
- ○ h' = 0
- ○ h' = 1

5. Consider following sentences regarding A * , an informed search strategy in Artificial Intelligence (AI). (a) A * expands all nodes with f(n) < C * . (b) A * expands no nodes with f(n) ≥ C * . (c) Pruning is integral to A * . Here, C * is the cost of the optimal solution path. Which of the following is correct with respect to the above statements ? *points: 1*

- ○ Both statement (a) and statement (b) are true.
- ○ Both statement (a) and statement (c) are true.
- ○ Both statement (b) and statement (c) are true.
- ○ All the statements (a), (b) and (c) are true.

6. Consider the following AO graph: Which is the best node to expand next by AO* algorithm? *points: 1*



- ○ A
- ○ B
- ○ C
- ○ B and C

7. Consider the following bachelor Prolog program. What would it be the "INCORRECT" result of the following query? bachelor(P) :- male(P), not married(P). male(henry). male(tom). married(tom). *points: 1*

- ◯ ?- bachelor(henry).
  yes
- ◯ ?- bachelor(tom).
  no
- ◯ ?- bachelor(Who).
  Who=henry
- ◯ ?- married(X). X=tom
- ◯ ?- male(P).
  no

8. The predicate "length(L,N)'' is supposed to bind N to be the length of L. Thus, "length([a,b,c,d],N)'' should succeed with N bound to 4. Which of the following definitions is correct: (Only one is.) *points: 1*

- ◯ length([],0). length([X|L],N) :- length(L,N) +
  1.
- ◯ length([],0). length([X|L],N) :- length(L,N), N is
  N+1.
- ◯ length([],0). length([X|L], N+1) :- length(L,N).
- ◯ length([],0). length([X|L], N) :- N1 is N-1,
  length(L,N1).
- ◯ length([],0). length([X|L],N) :- length(L,N1), N is
  N1+1.

9. Which one from the options would return true/yes for given prolog program? boy(john,123). girl(jane,234). student(john,123). *points: 1*

- ◯ ?-
  girl(jane,x).
- ◯ ?-
  boy('john',123).
- ◯ All of
  above.
- ◯ None of
  above.

10. A prolog query can be made up of only two subgoals. *points: 1*

- ◯ True
- ◯ False

11. Which one of the following is not a variable in prolog? *points: 1*

- ◯ X_yz
- ◯ g_23A
- ◯ '_Xyz'
- ◯ B & C both

12. Which function is used to calculate the feasibility of whole game tree? *points: 1*

- ◯ Evaluation function
- ◯ Transposition
- ◯ Alpha-beta pruning
- ◯ All of the mentioned

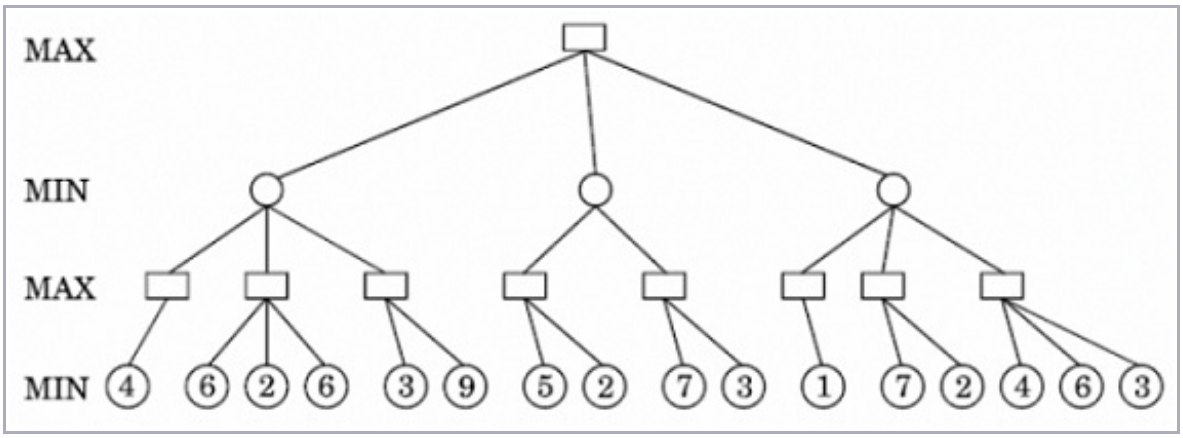
13. A game can be formally defined as a kind of search problem with the following components: *points: 1*

- ◯ Initial State
- ◯ Successor Function
- ◯ Terminal Test
- ◯ All of the mentioned

14. The initial state and the legal moves for each side define the _____ for the game. *points: 1*

- ◯ Search Tree
- ◯ Game Tree
- ◯ State Space Search
- ◯ Forest

15. Consider the following minimax game tree search *points: 1*



- ○ 3
- ○ 4
- ○ 5
- ○ 6

16. In alpha-beta pruning, ... is used to cut off the search at maximizing level only and ..... is used to cut off the search at minimizing level only. *points: 1*

- ○ alpha, beta
- ○ beta, alpha
- ○ alpha, alpha
- ○ beta, beta

17. An expert system shell is an expert system without *points: 1*

- ○ domain knowledge
- ○ explanation facility
- ○ reasoning with knowledge
- ○ all of the above

18. Match the following components of an expert system : a. I/O interface i. Accepts user's queries and responds to question through I/O interface b. Explanation module ii. Contains facts and rules about the domain c. Inference engine iii. Gives the user,the ability to follow inferencing steps at any time during consultation d. Knowledge base iv. Permits the user to communicate with the system in a natural way Code a b c d *points: 1*

- ○ i iii iv ii
- ○ iv iii i ii
- ○ i iii ii iv
- ○ iv i iii ii

19. The major tasks of NLP includes *points: 1*

- ◯ Automatic Summarization
- ◯ Discourse Analysis
- ◯ Machine Translation
- ◯ All of the mentioned

20. High level knowledge which relates to the use of sentences in different contexts and how the context affect the meaning of the sentences? *points: 1*

- ◯ Morphological
- ◯ Syntactic
- ◯ Semantic
- ◯ Pragmatic

21. One of the main challenge/s of NLP Is _____ *points: 1*

- ◯ Handling Ambiguity of Sentences
- ◯ Handling Tokenization
- ◯ Handling POS-Tagging
- ◯ All of the mentioned

22. Natural Language generation is the main task of Natural language processing. *points: 1*

- ◯ True
- ◯ False

23. Hill-Climbing algorithm terminates when, *points: 1*

- ◯ Stopping criterion met
- ◯ Global Min/Max is achieved
- ◯ No neighbor has higher value
- ◯ All of the mentioned

24. Genetic algorithm (or GA) is a variant of stochastic beam search in which successor states are generated by combining two parent states, rather than by modifying a single state. *points: 1*

- ◯ True
- ◯ False

25. Mark two main features of Genetic Algorithm *points: 1*

- ◯ Fitness function & Crossover techniques
- ◯ Crossover techniques & Random mutation
- ◯ Individuals among the population & Random mutation
- ◯ Random mutation & Fitness function

26. Many words have more than one meaning; we have to select the meaning which makes the most sense in context. This can be resolved by *points: 1*

- ◯ Fuzzy Logic
- ◯ Word Sense Disambiguation
- ◯ Shallow Semantic Analysis
- ◯ All of the mentioned

27. Semantic Networks is *points: 1*

- ◯ A way of representing knowledge
- ◯ Data Structure
- ◯ Data Type
- ◯ None of the mentioned

28. There exists two way to infer using semantic networks. *points: 1*

- ◯ Intersection Search
- ◯ Inheritance Search
- ◯ True
- ◯ False

29. All of the following are suitable problems for genetic algorithms EXCEPT

points: 1

- ◯ dynamic process control
- ◯ pattern recognition with complex patterns
- ◯ simulation of biological models
- ◯ simple optimization with few variables

30. Following are the elements, which constitutes to the frame structure.

points: 1

- ◯ Facts or Data
- ◯ Procedures and default values
- ◯ Frame names
- ◯ Frame reference in hierarchy