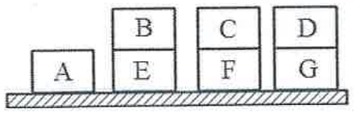
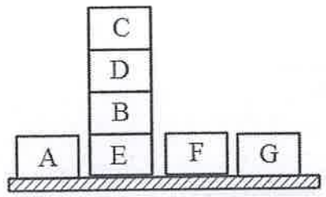
28. a. Explain continuous planning algorithm. Using blocks world. Assume Initial state as: | 10 | 2 | 3 | 2 |



Final state as:



(OR)

b. Using Baye's theorem solve the following problem. In a factory which manufactures bolts, machines A, B and C manufacture respectively 25%, 35% and 40% of the bolts of their outputs 5%, 4% and 2% are respectively defective bolts. A bolts is drawn at random from the product and is found to be defective. What is the probability that it is manufactured by the machine B? | 10 | 2 | 3 | 2 |

29. a. Explain in detail about decision tree learning with an example. | 10 | 2 | 4 | 2 |

(OR)

b. Discuss briefly about Bayesian network method of performing exact inference. | 10 | 2 | 4 | 2 |

30. a. Explain K-means clustering in machine learning with a neat diagram. | 10 | 1 | 5 | 2 |

(OR)

b. Explain in detail about feed forward neural network with neat diagram. | 10 | 1 | 5 | 2 |

* * * * *

Reg. No.														

B.Tech. DEGREE EXAMINATION, MAY 2022
Seventh Semester

18EEE424T – ARTIFICIAL INTELLIGENCE
(For the candidates admitted from the academic year 2018-2019 to 2019-2020)

Note:
(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
(ii) **Part - B** should be answered in answer booklet.

Time: 2½ Hours | Max. Marks: 75

	Marks	BL	CO	PO

PART – A (25 × 1 = 25 Marks)
Answer **ALL** Questions

1. In artificial intelligence, the first test for acting humanly is tested using _____ | 1 | 1 | 1 | 1 |
(A) Turning test (B) Turing test
(C) LISP (D) Plan test

2. Blind search can be used for which of the following situations? | 1 | 1 | 1 | 1 |
(A) Real-life simulation (B) Small search space
(C) Advance game theory (D) Large search space

3. The process of removing detailed information from a representation is called _____ | 1 | 1 | 1 | 1 |
(A) Planning (B) Abstraction
(C) Erection (D) Monitoring

4. Which search strategy is also called as blind search? | 1 | 1 | 1 | 1 |
(A) Simple reflex search (B) Uniformed search
(C) Informed search (D) Informative search

5. The condition which needs to get satisfied for alpha-beta pruning is _____ | 1 | 1 | 2 | 1 |
(A) $\alpha >= \beta$ (B) $\alpha <= \beta$
(C) Only $\alpha = \beta$ (D) $\alpha < \beta$

6. Backward chaining algorithm is similar to which algorithm | 1 | 1 | 1 | 1 |
(A) Hill-climbing search algorithm (B) Breadth-first search algorithm
(C) depth-first search algorithm (D) Space search algorithm

7. Evaluation function of greedy approach is _____ | 1 | 2 | 2 | 1 |
(A) Heuristic function (B) Path cost from start node to current node
(C) Path cost from start node to current node + heuristic cost (D) Average of path cost from start node to current node

8. FIFO is _____where as LIFO is _____ 1 1 2 1
(A) Stack, queue (B) Queue, stack
(C) Priority queue, stack (D) Priority stack, queue

9. Which is used to improve the agents performance? 1 1 2 1
(A) Perceiving (B) Observing
(C) Learning (D) Sequence

10. In proposition logic the technical term "if and only if" connective symbol is _____ 1 1 2 1
(A) $\rightarrow$ (B) $\leftrightarrow$
(C) $\equiv$ (D) $\wedge$

11. Planning with forward state-space search is also called as _____ 1 1 3 1
(A) Prodecessors planning (B) Moving front planning
(C) Progression planning (D) Front space planning

12. Standard planning algorithm assumes environment to be _____ 1 2 3 1
(A) Deterministic (B) Fully observable
(C) Single agent (D) Stochastic

13. What is the other name of each plan resulted in partial-order planning? 1 1 3 1
(A) Partial planning (B) Solarization
(C) Linearization (D) Polarization

14. A _____consists of a sequence of levels that corresponds to time steps in the plan. 1 1 3 1
(A) Proportional graph (B) Planning graph
(C) Flow chart (D) Planning tree

15. The blocks world problem in artificial intelligence is normally discussed to explain a _____ 1 1 3 1
(A) Search technique (B) Constraint satisfaction system
(C) Knowledge base system (D) Planning system

16. Bayesian network is a _____ 1 1 4,6 1
(A) programming language (B) Transfer control protocol
(C) Data structure (D) User datagram protocol

17. In which of the following learning the teacher returns reward and punishment to learner? 1 1 4,6 1
(A) Active learning (B) Reinforcement learning
(C) Supervised learning (D) Unsupervised learning

18. Which kind of planning is needed for human who can type and speak at the same time? 1 1 4 1
(A) Continuous planning (B) Conditional planning
(C) Multi agent planning (D) Probabilistic planning

19. In which learning technique the agent learns patterns in the input even through no explicit feedback is supplied? 1 1 4,6 1
(A) Un supervised learning (B) Supervised learning
(C) Semi-supervised learning (D) Reinforcement learning

20. In ensemble learning classification bootstrap aggregating, often abbreviated as _____ 1 1 4 1
(A) Bagging (B) Boosting
(C) Stacking (D) Bucketing

21. In supervised learning, the agent learns from _____ 1 1 5 1
(A) Patterns (B) Punishments
(C) Training data set (D) Rewards

22. In biological neuron, what is the shape of dendrites like _____ 1 1 5 1
(A) Oval (B) Circle
(C) Tree (D) Triangle

23. In feed forward ANN, information flow is _____ 1 1 5 1
(A) Unidirectional (B) Bidirectional
(C) Stationary (D) Multidirection

24. In a machine-learning algorithm if underlying trend of the data is not captured then it is _____ 1 2 5,6 1
(A) Optimum fitting (B) Properly fitted
(C) Over fitting (D) Underfitting

25. What is perception? 1 1 5 1
(A) A single layer feed-forward neural network with pre-processing (B) An auto-associative neural network
(C) A double layer auto-associative neural network (D) A neural network that contains feedback

PART – B (5 × 10 = 50 Marks) Marks BL CO PO
Answer **ALL** Questions

26. a. Categorise and explain four basic agents in artificial intelligence. 10 1 1 1

(OR)

b. Explain and give a suitable example for uniformed search strategies algorithm. 10 1 1 1

27. a. Explain in detail alpha-beta pruning algorithm with an example which will apply to it. 10 1 2 2

(OR)

b. Explain in detail forward chaining and backward chaining with neat diagram. 10 1 2 2