1. An AI agent perceives and acts upon the environment using___.
    a. Sensors
    b. Perceiver
    c. Actuators
    d. Both a and c

Ans- d

2. Which search method takes less memory?

    a. Depth-First Search
    b. Breadth-First search
    c. Optimal search
    d. Linear Search

Ans- a

3. Which is used to improve the agents performance?
    a. Perceiving
    b. Learning
    c. Observing
    d. None of the mentioned

Ans-b

4. How many types of agents are there in artificial intelligence?
    a. One
    b. Two
    c. Three
    d. Four

Ans-c

5. An agent is composed of _____
    a. Architecture
    b. Agent Function

c. Perception Sequence

d. Architecture and Program

Ans-d

6. What is state space?

a. The whole problem

b. Your Definition to a problem

c. Problem you design

d. Representing your problem with variable and parameter

Ans-d

7. A problem in a search space is defined by one of these state

a. Initial state

b. Last state

c. Intermediate state

d. Successor state

Ans-a

8. The process of removing detail from a given state representation is called _____

a. Extraction

b. Abstraction

c. Information Retrieval

d. Mining of data

Ans-b

9. A production rule consists of _____

a. A set of Rule

b. A sequence of steps

c. Set of Rule & sequence of steps

d. Arbitrary representation to problem

Ans-c

10. Which search method takes less memory?

a. Depth-First Search

b. Breadth-First search
c. Linear Search
d. Optimal search

Ans-a

11. Which search strategy is also called as blind search?
a. Uninformed search
b. Informed search
c. Simple reflex search
d. Depth-limited search

Ans-a

12. Which search is implemented with an empty first-in-first-out queue?

a. Depth-first search
b. Breadth-first search
c. Unidirectional search
d. Bidirectional search

Ans-b

13. Which search algorithm imposes a fixed depth limit on nodes?
a. Depth-limited search
b. Depth-first search
c. Iterative deepening search
d. Bidirectional search

Ans-a

14. When will Hill-Climbing algorithm terminate?
a. Stopping criterion met
b. Global Min/Max is achieved
c. Local Min/Max is achieved
d. No neighbour has higher value

Ans-d

15. _____ algorithm keeps track of k states rather than just one.
    a. Hill-Climbing search
    b. Local Beam search
    c. Stochastic hill-climbing search
    d. Random restart hill-climbing search

Ans-b

16. A* algorithm is based on _____
    a. Breadth-First-Search
    b. Depth-First –Search
    c. Best-First-Search
    d. Hill climbing

Ans-c

17. To overcome the need to backtrack in constraint satisfaction problem can be eliminated by _____
    a. Forward Searching
    b. Constraint Propagation
    c. Backtrack after a forward search
    d. Omitting the constraints and focusing only on goals

Ans- a

18. What is the evaluation function in greedy approach?
    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 and Heuristic cost

Ans-1

19. What is the general term of Blind searching?

a. Informed Search
b. Uninformed Search
c. Informed & Unformed Search
d. Informed & Unformed Search

Ans-b

20. Optimality of BFS is _____

a. When there is less number of nodes
b. When there is more number of nodes
c. When all step costs are equal
d. When all step costs are unequal

Ans-c

21. A heuristic is a way of trying

(a) To discover something or an idea embedded in a program

(b) To search and measure how far a node in a search tree seems to be from a goal

(c) To compare two nodes in a search tree to see if one is better than the other

(d) Only (a), (b) and (c).

Ans- d

22. Which statement is valid for the Heuristic function?

a. The heuristic function is used to solve mathematical problems.
b. The heuristic function takes parameters of type string and returns an integer value.
c. The heuristic function does not have any return type.
d. The heuristic function calculates the cost of an optimal path between the pair of states.

Ans-d

1. An AI agent perceives and acts upon the environment using___.
   a. Sensors
   b. Perceiver
   c. Actuators
   d. Both a and c

Ans- d

2. How do you represent "All dogs have tails".

(a) ∀x: dog(x)->hastail(x) (b) ∀x: dog(x) ->hastail(y)

(c) ∀x: dog(y) ->hastail(x) (d) ∀x: dog(x) ->hasàtail(x)

Ans- a

3. Which is not a property of representation of knowledge?

(a) Representational Verification (b) Representational Adequacy

(c) Inferential Adequacy (d) Inferential Efficiency

Ans-a

4. Which is not a Goal-based agent?

(a) Inference (b) Search

(c) Planning (d) Conclusion

Ans-d

5. Uncertainty arises in the wumpus world because the agent's sensors give only

(a) Full & Global information (b) Partial & Global Information

(c) Partial & local Information (d) Full & local information

Ans- c

6. What is true about rule based system?

A. The definitions of rule-based system depend almost entirely on expert systems.
B. A rule based system uses rules as the knowledge representation for knowledge coded into the system.
C. A rule-based system is a way of encoding a human expert's knowledge in a fair-ly narrow area into an automated system.
D. All of the above

Ans-D

7. Backward chaining rule is?

A. Goal driven
B. Data driven
C. Both A and B
D. None of the above
Ans- A

8. In a backward chaining system, we begin with some hypotheses, we are trying to prove the hypothesis, and try to find the rules that would allow us to determine that hypothesis, perhaps setting new sub-goals to prove as you go.

(A). True
(B). False
(C). Partially correct
(D). Incorrect
Ans-A

9. State space is…
a) Representing your problem with variable and parameter

b) Problem you design

c) Your Definition to a problem

d) The whole problem

ans- A

10. What will be returned by backward chaining AI Algorithm?

(A). Additional statements

(B). Logical statement

(C). Substitutes matching the query

(D). All of the mentioned

Answer: C

11. Which of the following is exact backward chaining algorithm

(A). Hill-climbing search AI Algorithm

(B). Breadth-first search AI Algorithm

(C). Depth-first search AI Algorithm

(D). All of the mentioned

Answer: C

12. which of the following can occur in backward chaining

(A). Repeated states

(B). Incompleteness

(C). Both A and B

(D). Complexity

Answer: C

13. What is the condition of variables in first-order literals?

(A). Universally quantified

(B). Existentially quantified

(C). Both A & B

(D). None of these

Answer: A

14. Which condition will stop the growth of the forwarding chaining approach?

(A). Atomic sentences

(B). No further inference

(C). Complex sentences

(D). All of these

Answer: B

15. Skolmization is the process of

a. bringing all the quantifiers in the beginning of a formula in FDL

b. removing all the universal quantifiers

c. removing all the existential quantifiers

d. all of the above

Ans- c

16. A cryptarithmetic problem of the type

SEND
+ MORE

MONEY

Can be solved efficiently using
a. depth first technique
b. breadth first technique
c. constraint satisfaction technique
d. bidirectional technique

ans- c

17. The objective of_____ procedure is to discover at least one_____that causes two literals to match.

a. unification, validation
b. unification, substitution
c. substitution, unification
d. minimax, maximum

ans- b

18. Match the following:

a. Script	i. Directed graph with labelled nodes for graphical representation of knowledge
b. Conceptual	ii. Knowledge about objects and events is stored in record-like structures consisting of slots and slot values.
c. Frames	iii. Primitive concepts and rules to represent natural language statements
d. Associative Network	iv. Frame like structures used to represent stereotypical patterns for commonly occurring events in terms of actors, roles, props and scenes

code:

a = ? , b = ? , c = ? , d = ?

a. iv ii i iii
b. iv iii ii i
c. ii iii iv i

d. i iii iv ii

ans- c

19. 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 = ?

a. i iii iv ii

b. iv iii i ii

c. i iii ii iv

d. iv i iii ii

ans- d

20. STRIPS address the problem of _____

a. representation

b. implementation

c. navigation

d. a and b

ans- d

21. STRIPS is not related to _____

a. SHAKEY

b. SRI

c. NLP

d. None of these

ans- c

22. Each alphabet have a value between 0 to 9 in a cryptoarithmetic problem

CROSS+ROADS

DANGER

Which of the following statement is true ?

(i) No two alphabets can have the same numeric value.

(ii) Any two alphabets may have the same numeric value.

(iii) D = 0

(iv) D = 1

a. (i) and (iii)

b. (i) and (iv)

c. (ii) and (iii)

d. (ii) and (iv)

Ans- b

23. The map colouring problem can be solved using which of the following technique?

a. Means-end analysis

b. Constraint satisfaction

c. AO* search

d. Breadth first search

ans- b

24. _____ are mathematical problems defined as a set of objects whose state must satisfy a number of constraints or limitations.

a) Constraints Satisfaction Problems

b) Uninformed Search Problems

c) Local Search Problems

d) All of the mentioned

Ans- a

25. To get rid of backtracking in constraint satisfaction problem _____ is used

a) Forward Searching

b) Constraint Propagation

c) Backtrack after a forward search

d) Omitting the constraints and focusing only on goals

Ans- a

Unit - I

S.r No	Question	Option a	Option b	Option c	Option d	Correct Answer
1	Depth First Search is equivalent to which of the traversal in the Binary Trees?	Pre-order Traversal	Post-order Traversal	Level-order Traversal	In-order Traversal	a
2	Time Complexity of DFS is? (V – number of vertices, E – number of edges)	O(E)	O(V)	O(V+E)	O(V*E)	c
3	The Depth First Search traversal of a graph will result into?	Linked List	Tree	Graph with back edges	Array	b
4	Which algorithm is used in graph traversal and path finding?	C*	A*	E*	D*	b
5	Branch and bound is a _____	data structure	type of tree	sorting algorithm	problem solving technique	d
6	Which data structure is used for implementing a LIFO branch and bound strategy?	stack	queue	array	linked list	a
7	Which data structure is used for implementing a FIFO branch and bound strategy	stack	queue	array	linked list	b
8	Which of the following can traverse the state space tree only in DFS manner?	branch and bound	dynamic programming	greedy algorithm	backtracking	d
9	Which of the following is false in the case of a spanning tree of a graph G?	It is tree that spans G	It is a subgraph of the G	It can be either cyclic or acyclic	It includes every vertex of the G	c
10	Consider a undirected graph G with vertices { A, B, C, D, E}. In graph G, every edge has distinct weight. Edge CD is edge with minimum weight and edge AB is edge with maximum weight. Then, which of the following is false?	Every minimum spanning tree of G must contain CD	If AB is in a minimum spanning tree, then its removal must disconnect G	No minimum spanning tree contains AB	G has a unique minimum spanning tree	c
11	Which search strategy is also called as blind search?	Uninformed search	Informed search	Simple reflex search	All of the mentioned	a
12	Which search is implemented with an empty first-in-first-out queue?	Depth-first search	Breadth-first search	Bidirectional search	None of the mentioned	b
13	How many successors are generated in backtracking search?	1	2	3	4	a
14	Which algorithm is used to solve any kind of problem?	Breadth-first algorithm	Tree algorithm	Bidirectional search algorithm	None of the mentioned	b
15	Which search algorithm imposes a fixed depth limit on nodes?	Depth-limited search	Depth-first search	Iterative deepening search	Bidirectional search	a

16	Which search implements stack operation for searching the states?	Depth-limited search	Depth-first search	Iterative deepening search	Bidirectional search	b
17	Strategies that know whether one non-goal state is "more promising" than another are called _____	Informed & Unformed Search	**Unformed Search**	**Heuristic & Unformed Search**	**Informed & Heuristic Search**	d
18	uniform-cost search expands the node n with the _____	**Lowest path cost**	**Heuristic cost**	**Highest path cost**	**Average path cost**	a
19	**What is the other name of informed search strategy?**	Simple search	Heuristic search	Online search	None of the mentioned	b
20	Which search uses the problem specific knowledge beyond the definition of the problem?	Informed search	Depth-first search	Breadth-first search	Uninformed search	a
21	A heuristic is a way of trying _____	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 another	All of the mentioned	d
22	A* algorithm is based on _____	Breadth-First-Search	Depth-First –Search	Best-First-Search	Hill climbing	c
23	Best-First search is a type of informed search, which uses _____ to choose the best next node for expansion	Evaluation function returning lowest evaluation	Evaluation function returning highest evaluation	Evaluation function returning lowest & highest evaluation	None of them is applicable	a
24	Heuristic function h(n) is _____	**Lowest path cost**	**Cheapest path from root to goal node**	**Estimated cost of cheapest path from root to goal node**	**Average path cost**	c
25	**Greedy search strategy chooses the node for expansion in _____**	**Shallowest**	**Deepest**	**The one closest to the goal node**	**Minimum heuristic cost**	c
26	**What is the evaluation function in greedy approach?**	**Heuristic function**	**Path cost from start node to current node**	**Path cost from start node to current node + Heuristic cost**	**Average of Path cost from start node to current node and Heuristic cost**	a
27	**What is the evaluation function in A* approach?**	**Heuristic function**	**Path cost from start node to current node**	**Path cost from start node to current node + Heuristic cost**	**Average of Path cost from start node to current node and Heuristic cost**	c
28	**In many problems the path to goal is irrelevant, this class of problems can be solved using _____**	**Informed Search Techniques**	**Uninformed Search Techniques**	**Local Search Techniques**	**Informed & Uninformed Search Techniques**	c

29	Though local search algorithms are not systematic, key advantages would include _____	**Less memory**	**More time**	**Finds a solution in large infinite space**	**Less memory & Finds a solution in large infinite space**	d
30	_____ Is an algorithm, a loop that continually moves in the direction of increasing value – that is uphill.	**Up-Hill Search**	**Hill-Climbing**	**Hill algorithm**	**Reverse-Down-Hill search**	b
31	When will Hill-Climbing algorithm terminate?	**Stopping criterion met**	**Global Min/Max is achieved**	**No neighbor has higher value**	**All of the mentioned**	c
32	Hill climbing sometimes called _____ because it grabs a good neighbor state without thinking ahead about where to go next	Needy local search	Heuristic local search	Greedy local search	Optimal local search	c
33	Searching using query on Internet is, use of _____ type of agent	Offline agent	Online agent	Both Offline & Online agent	Goal Based & Online agent	d
34	Best-First search can be implemented using the following data structure	Queue	Stack	Priority Queue	Circular Queue	c
35	Which is used to improve the performance of heuristic search?	Quality of nodes	Quality of heuristic function	Simple form of nodes	None of the mentioned	b
36	Which search is complete and optimal when h(n) is consistent?	Best-first search	Depth-first search	Both Best-first & Depth-first search	A* search	d
37	Which method is used to search better by learning?	Best-first search	Depth-first search	Metalevel state space	None of the mentioned	c
38	Which search uses only the linear space for searching?	Best-first search	Recursive best-first search	Depth-first search	None of the mentioned	b
39	What is the heuristic function of greedy best-first search?	f(n) != h(n)	f(n) < h(n)	f(n) = h(n)	f(n) > h(n)	c
40	Which function will select the lowest expansion node at first for evaluation?	Greedy best-first search	Best-first search	Depth-first search	None of the mentioned	b

Unit - II

S.r No	Question	Option a	Option b	Option c	Option d	Correct Answer
1	This set of Basic Artificial Intelligence Questions and Answers focuses on “Constraints Satisfaction Problems”.	a) Constraints Satisfaction Problems	b) Uninformed Search Problems	c) Local Search Problems	d) All of the mentioned	a
2	Which of the Following problems can be modeled as CSP?	a) 8-Puzzle problem	b) 8-Queen problem	c) Map coloring problem	d) All of the mentioned	d
3	What among the following constitutes to the incremental formulation of CSP?	a) Path cost	b) Goal cost	c) Successor function	d) All of the mentioned	d
4	The term _____ is used for a depth-first search that chooses values for one variable at a time and returns when a variable has no legal values left to assign.	a) Forward search	b) Backtrack search	c) Hill algorithm	d) Reverse-Down-Hill search	b
5	To overcome the need to backtrack in constraint satisfaction problem can be eliminated by _____	a) Forward Searching	b) Constraint Propagation	c) Backtrack after a forward search	d) Omitting the constraints and focusing only on goals	a
6	The BACKTRACKING-SEARCH algorithm in Figure 5.3 has a very simple policy for what to do when a branch of the search fails: back up to the preceding variable and try a different value for it. This is called chronological-backtracking. It is also possible to go all the way to set of variable that caused failure	a) True	b) False			a
7	Consider a problem of preparing a schedule for a class of student. What type of problem is this?	a) Search Problem	b) Backtrack Problem	c) CSP	d) Planning Problem	c
8	Constraint satisfaction problems on finite domains are typically solved using a form of _____	a) Search Algorithms	b) Heuristic Search	c) Greedy Search	d) All of the mentioned	d
9	Solving a constraint satisfaction problem on a finite domain is an/a _____ problem with respect to the domain size.	a) P complete	b) NP complete	c) NP hard	d) Domain dependent	b

10	_____ is/are useful when the original formulation of a problem is altered in some way, typically because the set of constraints to consider evolves because of the environment.	a) Static CSPs	b) Dynamic CSPs	c) Flexible CSPs	d) None of the mentioned	b
11	Flexible CSPs relax on _____	a) Constraints	b) Current State	c) Initial State	d) Goal State	a
12	Language/Languages used for programming Constraint Programming includes _____	a) Prolog	b) C#	c) C	d) Fortrun	a
13	Backtracking is based on _____	a) Last in first out	b) First in first out	c) Recursion	d) Both Last in first out & Recursion	d
14	Constraint Propagation technique actually modifies the CSP problem.	a) True	b) False			a
15	When do we call the states are safely explored?	a) A goal state is unreachable from any state	b) A goal state is denied access	c) A goal state is reachable from every state	d) None of the mentioned	c
16	Which of the following algorithm is generally used CSP search algorithm	a) Breadth-first search algorithm	b) Depth-first search algorithm	c) Hill-climbing search algorithm	d) None of the mentioned	b
17	Which of the following algorithm is generally used CSP search algorithm?	1.Breadth-first search algorithm	**2.** Depth-first search algorithm	**3.** Hill-climbing search algorithm	**4.** None of the mentioned	b
18	When do we call the states are safely explored?	**1.** A goal state is unreachable from any state	**2.** A goal state is denied access	**3.** A goal state is reachable from every state	**4.** None of the mentioned	c
19	Constraint Propagation technique actually modifies the CSP problem.	a) True	b) False			a
20	CSPs are –	an alternative formulation for general problem solving method	ways of formulating problems using variables and constraints	problems that come in the way of satisfying constraints	problems that arise after constraint satisfaction	a
21	A constraint is	something that prevents an algorithm from solving a problem.	a restriction on what values the variables in the problem can take.	a limitation of the problem solving approach.	none of the above.	b

22	A Binary CSP is	a CSP with only two variables.	a CSP where each variable can take only two values.	a CSP with only two constraints.	a CSP where the size of the scope of every constraint is two.	d
23	A CSP with only soft constraints, also called preferences	has only solutions with all constraints satisfied.	may have not any solution at all.	can have more than one solution with different associated costs	none of the above	c
24	Searching using query on Internet is, use of _____ type of agent	**1.** Offline agent	**2.** Online agent	**3.** Both Offline & Online agent	**4.** Goal Based & Online agent	d
25	Mark two main features of Genetic Algorithm	**1.** Fitness function & Crossover techniques	**2.** Crossover techniques & Random mutation	**3.** Individuals among the population & Random mutation	**4.** Random mutation & Fitness function	a
26	Optimality of BFS is	**1.** When there is less number of nodes	**2.** When all step costs are equal	**3.** When all step costs are unequal	**4.** None of the mentioned	b
27	A production rule consists of	**1.** A set of Rule	**2.** A sequence of steps	**3.** Set of Rule & sequence of steps	**4.** Arbitrary representation to problem	c
28	The major component/components for measuring the performance of problem solving	**1.** Completeness	**2.** Optimality	**3.** Time and Space complexity	**4.** All of the mentioned	d
29	Web Crawler is a/an	**1.** Intelligent goal-based agent	**2.** Problem-solving agent	**3.** Simple reflex agent	**4.** Model based agent	a
30	What is state space?	**1.** The whole problem	**2.** Your Definition to a problem	**3.** Problem you design	**4.** Representing your problem with variable and parameter	d
31	he main task of a problem-solving agent is	**1.** Solve the given problem and reach to goal	**2.** To find out which sequence of action will get it to the goal state	**3.** All of the mentioned	**4.** None of the mentioned	c

32	The process by which the brain orders actions needed to complete a specific task is referred as _____	a) Planning problem	b) Partial order planning	c) Total order planning	d) Both Planning problem & Partial order planning	d
33	The famous spare tire problem or Scheduling classes for bunch of students or Air cargo transport are the best example of _____	a) Planning problem	b) Partial Order planning problem	c) Total order planning	d) None of the mentioned	a
34	To eliminate the inaccuracy problem in planning problem or partial order planning problem we can use _____ data structure/s.	a) Stacks	b) Queue	c) BST (Binary Search Tree)	d) Planning Graphs	d
35	Planning graphs consists of _____	a) a sequence of levels	b) a sequence of levels which corresponds to time steps in the plan	c) a sequence of actions which corresponds to the state of the system	d) none of the mentioned	b
36	Planning graphs works only for prepositional planning problems.	a) True	b) False			a
37	_____ algorithms is used to extract the plan directly from the planning graph, rather than using graph to provide heuristic.	a) BFS/DFS	b) A*	c) Graph-Plan	d) Greedy	c
38	What is the other name of each plan resulted in partial order planning?	a) Polarization	b) Linearization	c) Solarization	d) None of the mentioned	b
39	. What are the two major aspects which combines AI Planning problem?	a) Search & Logic	b) Logic & Knowledge Based Systems	c) FOL & Logic	d) Knowledge Based Systems	a
40	Which of the following are action langauges	a) STRIP	b)ADL	C) All of the mentioned	d) None of the mentioned	c

Unit - III

S.r No	Question	a	b	c	d	Correct Answer
1	Knowledge and reasoning also play a crucial role in dealing with _____ environment.	Completely Observable	Partially Observable	Neither Completely nor Partially Observable	Only Completely and Partially Observable	b
2	Treatment chosen by doctor for a patient for a disease is based on _____	Only current symptoms	Current symptoms plus some knowledge from the textbooks	Current symptoms plus some knowledge from the textbooks plus experience	All of the mentioned	c
3	A knowledge-based agent can combine general knowledge with current percepts to infer hidden aspects of the current state prior to selecting actions.	TRUE	FALSE			a
4	A) Knowledge base (KB) is consists of set of statements. B) Inference is deriving a new sentence from the KB. Choose the correct option.	A is true, B is true	A is false, B is false	A is true, B is false	A is false, B is true	a
5	Wumpus World is a classic problem, best example of _____	Single player Game	Two player Game	Reasoning with Knowledge	Knowledge based Game	c
6	'α |= β '(to mean that the sentence α entails the sentence β) if and only if, in every model in which α is _____ β is also _____	True, true	True, false	False, true	False, false	a
7	Which is not a property of representation of knowledge?	Representational Verification	Representational Adequacy	Inferential Adequacy	Inferential Efficiency	a
8	Which is not Familiar Connectives in First Order Logic?	and	if	or	not	d
9	Inference algorithm is complete only if _____	It can derive any sentence	It can derive any sentence that is an entailed version	It is truth preserving	It can derive any sentence that is an entailed version & It is truth preserving	d
10	An inference algorithm that derives only entailed sentences is called sound or truth-preserving.	TRUE	FALSE			a
11	Which algorithm will work backward from the goal to solve a problem?	Forward chaining	Backward chaining	Hill-climb algorithm	None of the mentioned	b

12	Which is mainly used for automated reasoning?	Backward chaining	Forward chaining	Logic programming	Parallel programming	c
13	What will backward chaining algorithm will return?	Additional statements	Substitutes matching the query	Logical statement	All of the mentioned	b
14	How can be the goal is thought of in backward chaining algorithm?	Queue	List	Vector	Stack	d
15	What is used in backward chaining algorithm?	Conjuncts	Substitution	Composition of substitution	None of the mentioned	c
16	Which algorithm are in more similar to backward chaining algorithm?	Depth-first search algorithm	Breadth-first search algorithm	Hill-climbing search algorithm	All of the mentioned	a
17	Which problem can frequently occur in backward chaining algorithm?	Repeated states	Incompleteness	Complexity	Both Repeated states & Incompleteness	d
18	How the logic programming can be constructed?	Variables	Expressing knowledge in a formal language	Graph	All of the mentioned	b
19	What form of negation does the prolog allows?	Negation as failure	Proposition	Substitution	Negation as success	a
20	Which is omitted in prolog unification algorithm?	Variable check	Occur check	Proposition check	Both Occur & Proposition check	b
21	What is the frame?	A way of representing knowledge	Data Structure	Data Type	None of the mentioned	a
22	Frames in artificial intelligence is derived from semantic nets.	TRUE	FALSE			a
23	Which of the following elements constitutes the frame structure?	Facts or Data	Procedures and default values	Frame names	Frame reference in hierarchy	a
24	Like semantic networks, frames can be queried using spreading activation.	TRUE	FALSE			a
25	What is Hyponymy relation?	A is part of B	B has A as a part of itself	A is subordinate of B	A is superordinate of B	c

26	The basic inference mechanism in semantic network in which knowledge is represented as Frames is to follow the links between the nodes.	TRUE	FALSE			a
27	There exists two way to infer using semantic networks in which knowledge is represented as Frames.	Intersection Search	Inheritance Search	TRUE	FALSE	a
28	What among the following constitutes the representation of the knowledge in different forms?	Relational method where each fact is set out systematically in columns	Inheritable knowledge where relational knowledge is made up of objects	Inferential knowledge	All of the mentioned	d
29	What are Semantic Networks?	A way of representing knowledge	Data Structure	Data Type	None of the mentioned	a
30	Graph used to represent semantic network is _____	Undirected graph	Directed graph	Directed Acyclic graph (DAG)	Directed complete graph	b
31	Which of the following are the Semantic Relations used in Semantic Networks?	Meronymy	Holonymy	Hyponymy	All of the mentioned	d
32	What is Meronymy relation?	A is part of B	B has A as a part of itself	A is a kind of B	A is superordinate of B	a
33	What is Hypernym relation?	A is part of B	B has A as a part of itself	A is a kind of B	A is superordinate of B	d
34	What is Holonymy relation?	A is part of B	B has A as a part of itself	A is a kind of B	A is superordinate of B	b
35	The basic inference mechanism in semantic network is to follow the links between the nodes.	TRUE	FALSE			a
36	The rule of Universal Instantiation (UI for short) says that we can infer any sentence obtained by substituting a ground term (a term without variables) for the variable.	TRUE	FALSE			a
37	The corresponding Existential Instantiation rule: for the existential quantifier is slightly more complicated. For any sentence a, variable v, and constant symbol k that does not appear elsewhere in the knowledge base.	TRUE	FALSE			a
38	Lifted inference rules require finding substitutions that make different logical expressions looks identical.	Existential Instantiation	Universal Instantiation	Unification	Modus Ponen	c
39	Which of the following is not the style of inference?	Forward Chaining	Backward Chaining	Resolution Refutation	Modus Ponen	d

40	For resolution to apply, all sentences must be in conjunctive normal form, a conjunction of disjunctions of literals.	TRUE	FALSE			a

Unit - IV

S.r No	Question	a	b	c	d	Correct Answer
1	Information retrieval systems have much in common with	Filing systems	Transaction systems	Database systems	Management systems	c
2	Natural Language Processing is form of artificial intelligence that helps machine "read" text by simulating _____ ability to understand language	Text	human	lexical	program	b
3	NLG stand for____	Named Language Generation	Named Linked Generation	Natural Language Genration	None of above	c
4	Lexical Analysis is one of the steps for Natural Language Processing	TRUE	FALSE			a
5	Code generation is one of the steps for Natural Language Processing	TRUE	FALSE			b
6	What is plasticity in neural networks?	input pattern keeps on changing	input pattern has become static	output pattern keeps on changing	output is static	a
7	Semantic Analysis is one of the steps for Natural Language Processing	TRUE	FALSE			a
8	Natural Language Genration process includes	Text Realization	Syntatic Analysis	Integration	None of above	a
9	Inductive learning is _____learning technique	unSupervised	Supervised	reinforcement	None of above	b
10	What is the field of Natural Language Processing (NLP)?	Computer Science	Artificial Intelligence	Linguistics	All of the mentioned	d
11	Disclosure integration is one of the steps for Natural Language Processing	TRUE	FALSE			a
12	NLP is concerned with the interactions between computers and human (natural) languages.	TRUE	FALSE			a
13	What is the main challenge/s of NLP?	Handling Ambiguity of Sentences	Handling Tokenization	Handling POS-Tagging	All of the mentioned	a
14	Modern NLP algorithms are based on machine learning, especially statistical machine learning.	TRUE	FALSE			a

15	Choose form the following areas where NLP can be useful.	Automatic Text Summarization	Automatic Question-Answering Systems	Information Retrieval	All of the mentioned	d
16	Which of the following includes major tasks of NLP?	Automatic Summarization	Discourse Analysis	Machine Translation	All of the mentioned	d
17	What is Coreference Resolution?	Anaphora Resolution	Given a sentence or larger chunk of text, determine which words (“mentions”) refer to the same objects (“entities”)	All of the mentioned	None of the mentioned	b
18	What is Machine Translation?	Converts one human language to another	Converts human language to machine language	Converts any human language to English	Converts Machine language to human language	a
19	The more general task of coreference resolution also includes identifying so-called “bridging relationships” involving referring expressions	TRUE	FALSE			a
20	What is Morphological Segmentation?	Does Discourse Analysis	Separate words into individual morphemes and identify the class of the morphemes	Is an extension of propositional logic	None of the mentioned	b
21	Natural Language generation is the main task of Natural language processing.	TRUE	FALSE			a
22	Given a stream of text, Named Entity Recognition determines which pronoun maps to which noun.	TRUE	FALSE			b
23	OCR (Optical Character Recognition) uses NLP.	TRUE	FALSE			a
24	Parts-of-Speech tagging determines _____	part-of-speech for each word dynamically as per meaning of the sentence	part-of-speech for each word dynamically as per sentence structure	all part-of-speech for a specific word given as input	all of the mentioned	d
25	Parsing determines Parse Trees (Grammatical Analysis) for a given sentence.	TRUE	FALSE			a
26	. IR (information Retrieval) and IE (Information Extraction) are the two same thing.	TRUE	FALSE			b

27	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 _____	Fuzzy Logic	Word Sense Disambiguation	Shallow Semantic Analysis	All of the mentioned	b
28	Given a sound clip of a person or people speaking, determine the textual representation of the speech.	Text-to-speech	Speech-to-text	All of the mentioned	None of the mentioned	b
29	Speech Segmentation is a subtask of Speech Recognition.	TRUE	FALSE			a
30	In linguistic morphology _____ is the process for reducing inflected words to their root form.	Rooting	Stemming	Text-Proofing	Both Rooting & Stemming	b
31	Probability of error in recall of stored patterns can be reduced if?	patterns are stored appropriatel	inputs are captured appropriately	weights are chosen appropriately	none of the mentioned	c
32	What is pattern environment?	probability of desired patterns	probability of given patterns	behaviour of system	none of the mentioned	d
33	What should be the aim of training procedure in boltzman machine of feedback networks?	to capture inputs	to feedback the captured outputs	to capture the behaviour of system	none of the mentioned	d
34	What consist of boltzman machine?	fully connected network with both hidden and visible units	asynchronous operation	stochastic update	all of the mentioned	d
35	What's the main point of difference between human & machine intelligence?	human perceive everything as a pattern while machine perceive it merely as data	human have emotions	human have more IQ & intellect	human have sense organs	a
36	Does pattern classification belongs to category of non-supervised learning?	yes	no			b
37	What is unsupervised learning?	features of group explicitly stated	number of groups may be known	neither feature & nor number of groups is known	none of the mentioned	c
38	Does pattern classification & grouping involve same kind of learning?	yes	no			b
39	Does for feature mapping there's need of supervised learning?	yes	no			b
40	Example of a unsupervised feature map?	text recognition	voice recognition	image recognition	none of the mentioned	b

Unit - V

S.r No	Question	Option a	Option b	Option c	Option d	Correct Answer
1	_____ is the simplest method of collaborative robots and is used in applications when human interaction with robot is less.	a) Self monitored stop	b) Speed and separation monitoring	c) Power and force limiting	d) Hand guiding	a
2	IAD stands for _____	a) Intelligent Assist Device	b) Industrial Assist Device	c) International Assist Device	d) Informative Assist Device	a
3	Motive power was provided by the human worker.	Ture	FALSE			a
4	The collaborative robot arms are designed to mimic the range of motion of a _____	a) Network	b) Machine arm	c) Device	d) Human arm	d
5	A cobots as an apparatus and method for interaction between _____ and _____	a) person and computer	b) Device and computer	c) Device and human	d) Human and	a
6	A Robot is a	Programmable	Multi functional manipulator	Both (A) and (B)	None of the above	c
7	ANN stands for _____	Artificial neural network	Arithmetic neural network	Artificial neural node	None of the mentioned	a
8	Clockwise of Anti clockwise rotation about the vertical axis to the perpendicular arm is provided through	Shoulder swivel	Elbow extension	Arm sweep	Wrist bend	c
9	Drives are also known as	Actuators	Controller	Sensors	Manipulator	a
10	For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have?	4	5	6	7	c
11	If a robot has k legs, then the number of possible events is :	N = (2k-2)	N = (2k-1)!	N = (2^k-1)!	D. N = (2k-2)!	b
12	In ANN, all PE's are connected with feedback.	TRUE	FALSE			b
13	In ANN, neurons are represented by _____	Processing element	Memory	Wires	None of the mentioned	a
14	In co – robot co represents?	a) Coordinative	b) Collaborative	c) Computer	d) Control	b
15	In which of the following operations Continuous Path System is used	Pick and Place	Loading and Unloading	Continuous welding	All of the above	c
16	Industrial Robots are generally designed to carry which of the following coordinate system(s).	Cartesian coordinate systems	Polar coordinate systems	Cylindrical coordinate system	All of the above	d
17	Internal state sensors are used for measuring _____ of the end effector.	Position	Position & Velocity	Velocity & Acceleration	Position, Velocity & Acceleration	d

18	L293D is a/an _____	Motor driver IC	Micro controller	Bluetooth module	IR receiver/transmitter	a
19	MLP is feed-forward network.	TRUE	FALSE			a
20	Name the wheel which is used to rotates around the wheel axle and around the contact.	Castor wheel	Standard wheel	Swedish 45degree	spherical wheel	b
21	One of the leading American robotics centers is the Robotics Institute located at?	CMU	MIT	RAND	SRI	A
22	Principles of cybernetics was developed by _____	Josef capek	Norbert wiener	Isaac asimov	Karel capek	b
23	Radial movement (in & out) to the manipulator arm is provided by	Elbow extension	Wrist bend	Wrist swivel	Wrist yaw	a
24	Robot is derived from Czech word	Rabota	Robota	Rebota	Ribota	b
25	Robotics is a branch of AI, which is composed of _____.	Electrical Engineering	Mechanical Engineering	Computer Science	All of the above	a
26	The following drive is used for lighter class of Robot.	Pneumatic drive	Hydraulic drive	Electric drive	All of the above	a
27	The following is true for a Robot and NC Machine	Similar power drive technology is used in both	Different feedback systems are used in both	Programming is same for both	All of the above	a
28	The main objective(s) of Industrial robot is to	To minimise the labour requirement	To increase productivity	To enhance the life of production machines	All of the above	d
29	The Robot designed with Cartesian coordinate systems has	Three linear movements	Three rotational movements	Two linear and one rotational movement	Two rotational and one linear movement	a
30	The Robot designed with cylindrical coordinate systems has	Three linear movements	Three rotational movements	Two linear and one rotational movement	Two rotational and one linear movement	c
31	The Robot designed with Polar coordinate systems has	Three linear movements	Three rotational movements	Two linear and one rotational movement	Two rotational and one linear movement	d
32	What is the name for information sent from robot sensors to robot controllers?	temperature	pressure	feedback	signal	c
33	Which of the following is correct for proximity sensors?	Inductive type	Capacitive type	Ultrasonic wave type	All of the mentioned	d
34	Which of the following is not a programming language for computer controlled robot?	AMU	VAL	RAIL	HELP	a

35	Which of the following person used the name robot first time in print?	Josef capek	Karel capek	Isaac asimov	None of the mentioned	c
36	Which of the following represents muscles of a robot?	Actuators	Power supply	Micro controllers	Robotic arm	a
37	Which of the following sensors determines the relationship of the robot and its environment and the objects handled by it	Internal State sensors	External State sensors	Both (A) and (B)	None of the above	c
38	Which of the following statements concerning the implementation of robotic systems is correct?	implementation of robots CAN save existing jobs	implementation of robots CAN create new jobs	robotics could prevent a business from closing	All of the above	d
39	Which of the following work is done by General purpose robot?	Part picking	Welding	Spray painting	All of the above	d
40	ZMP stands for _____	Zero movement power	Zero magnetic point	Zero moment point	Zero metric point	c

Unit - VI

S.r No	Question	Option a	Option b	Option c	Option d	Correct Answer
1	Which of the following terms refers to the use of compressed gasses to drive (power) the robot device?	pneumatic	hydraulic	piezoelectric	photosensitive	a
2	With regard to the physics of power systems used operate robots, which statement or statements are most correct?	hydraulics involves the compression of liquids	hydraulics involves the compression of air	pneumatics involve the compression of air	chemical batteries produce AC power	c
3	Which of the following statements concerning the implementation of robotic systems is correct?	implementation of robots CAN save existing jobs	implementation of robots CAN create new jobs	robotics could prevent a business from closing	all of the mentioned	d
4	Which of the following IS NOT one of the advantages associated with a robotics implementation program?	Low costs for hardware and software	Robots work continuously around the clock	Quality of manufactured goods can be improved	Reduced company cost for worker fringe benefits	a
5	In a rule-based system, procedural domain knowledge is in the form of _____	rule interpreters	production rules	meta-rules	control rules	b
6	What is the goal of artificial intelligence?	To solve real-world problems	To solve artificial problems	To explain various sorts of intelligence	To extract scientific causes	c
7	Computers normally solve problem by breaking them down into a series of yes-or-no decisions represented by 1s and 0s. What is the name of the logic that allows computers to assign numerical values that fall somewhere between 0 and 1?	Human logic	Fuzzy logic	Boolean logic	Operational logic	b
8	Which of the following contains output segments of AI programming?	Printed language and synthesized	Manipulation of physical object	Locomotion	All of the mentioned	d
9	The component of an ICAI (Intelligent Computer Assisted Instruction) presenting information to the student is the?	Student model	Problem solving expertise	Tutoring module	All of the mentioned	c
10	The collaborative robot arms are designed to mimic the range of motion of a _____	Network	Machine arm	Device	Human arm	d
11	A_____ translates signals from the controller into the motor voltage and current	Servo motor	Servo amplifier	AC motor	DC motor	b
12	Motors used for electronic actuator drives :	AC servo motors	DC servo motors	Stepper motors	All of the mentioned	d

13	The basic components of hydraulic fluid power system are :	Reservoir	Pump and lines	Actuating devices and control valves	All of the mentioned	d
14	An automatic apparatus or device that performs functions ordinarily ascribed to humans or operate with what appears to be almost human intelligence is called _____	Robot	Human	Animals	Reptiles	a
15	The basic components of robot are:	The mechanical linkage	Sensors and controllers	User interface and power conversion unit	All of the mentioned	d
16	Non servo robots are also called as:	Pick and place	Fixed stop robot	Both of the mentioned	None of the mentioned	c
17	An android takes the form of:	An insect.	A human body.	A simple robot arm.	Binocular vision.	b
18	The extent to which a machine vision system can differentiate between two objects is called the:	Magnification	Sensitivity	Selectivity	Resolution	d
19	A robot that has its own computer, and can work independently of other robots or computers, is called an:	Android	Insect robot	Automated guided vehicle	Autonomous robot	d
20	An asset of epipolar navigation is the fact that it:	Does not require binaural hearing.	Does not require a computer	Can be done from a single observation frame	Requires no reference points at all	c
21	Spherical coordinates can uniquely define the position of a point in up to:	One dimension	Two dimensions	Three dimensions	Four dimensions	c
22	If a robot can alter its own trajectory in response to external conditions, it is considered to be _____	intelligent	mobile	open loop	non-servo	a
23	What is Machine Translation?	Converts human language to machine language	Converts one human language to another	Converts any human language to English	Converts Machine language to human language	b
24	What is Space Robotics?	Development of machines for less space requirement	Development of machines in space	Development of machines for the space environment	All of the mentioned	c
25	Advantage/s of Space Robots	Perform tasks less expensively and sooner	less risk	Robots don't need to return to Earth	All of the mentioned	d
26	The control of autonomous robots involves a number of subtask/s	Understanding and modeling of the mechanism	Reliable control of the actuators	Coping with noise and uncertainty	All of the mentioned	d
27	Requirements for Robots in Intelligent Environments	Intuitive Human-Robot Interfaces	Adaptivity	Both of the (a) and (b) mentioned	None of the mentioned	c

28	How robots know where they are	Self-Localisation	Navigation	Both of the (a) and (b) mentioned	None of the mentioned	a
29	Technique used for position measurement by distance travelled	Calorimetry	Photometry	Odometry	All of the mentioned	c
30	Which are parts of SLAM ?	Landmark extraction	State estimation	None of the mentioned	Both of the (a) and (b) mentioned	d
31	The key point about suitable Landmarks	Similar landmarks should be present	Individual landmarks should be distinguishable from each other	Duplication of landmarks in close vicinity	All of the mentioned	b
32	What is the best strategy for landmark identification ?	Template matching	Spell check	Nearest Neighbour Approach	None of the mentioned	c
33	What is a UAV ?	Unidentified Arial View	Computer Vision	Light Source	remotely piloted aircraft	d
34	Drone is a ----------	UAV	UFO	None of the mentioned	Both of the (a) and (b) mentioned	a
35	Example of Personal service robot	Thermostats and heating ducts	§House cleaning	Automatic doors	Security services	b
36	Which is a lacuna in Traditional programming techniques for industrial robots	Only limited on-line sensing	Only limited sensing	Interaction with humans	Incorporation of uncertainty	a
37	Which is Uncertainty in Robot Systems	Sensor uncertainty	Non-observability	Action uncertainty	All of the mentioned	d
38	Which of the following contains output segments of AI programming?	Printed language and synthesized	Manipulation of physical object	Locomotion	All of the mentioned	d
39	Which kind of planning consists of successive representations of different levels of a plan?	Hierarchical planning	Non-hierarchical planning	Project planning	All of the mentioned	a
40	In which of the following situations might a blind search be acceptable?	Real life situation	Complex game	Small search space	None of the mentioned	c