Name: Enrolment No:	**UPES** UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, July2020

Course: Artificial Intelligence   **Semester:** VI
Program: B.Tech CSE (BIG DATA)   **Time   : 02 hrs.**
Course Code: CSEG3005   **Max. Marks: 60**
Instructions: All questions are compulsory

👤 Ahatsham A **53** ▼

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🏠 Tests, Surveys and Pools   Tests   **Test Canvas : ESE AI**   Edit Mode is: ●ON   ?

This Test has 57 attempts. For information on editing questions, click **More Help** below. ✖
This Test has at least one attempt in progress. Deleting questions has been disabled. The attempts currently in progress are by: Vikash Chaudhary

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		Question Settings

You can edit, delete or change the point values of test questions on this page. If necessary, test attempts will be regraded after you submit your changes.

Description	1.This exam consists of 60 MCQs. 2.Each question carries 1 mark . 3.Duration of exam is 2 hours .
Instructions	1.This exam consists of 60 MCQs. 2.Each question carries 1 mark . 3.Duration of exam is 2 hours .
Total Questions	60
Total Points	60
Number of Attempts	57

Select: <u>All</u> <u>None</u> ⋮ Select by Type: [- Question Type - ▼]

Points [   ] [Update and Regrade] ⋮ [Hide Question Details]

☐   Points: **1**
1. Multiple Choice: Q1.: Machine Learning is said as a subset ...

Question

Machine Learning is said as a subset of artificial intelligence that is mainly concerned with the development of algorithms which allow a computer to learn from the data and past experiences on their own.State true or false

Answer	
✅	True
	False

Points: 1

2. Multiple Choice: Q2.: _____ and _____ are t...

Question	_____ and _____ are two categories of Supervised learning .
Answer	✅ Classification and Regression
	Classification and Clustering
	Regression and Clustering
	None of the above

Points: 1

☐ 3. Multiple Choice: Which of the following mentioned prop...

Question	Which of the following mentioned properties are valid for a Cryptarithmetic problem? 1. A number 0-9 is assigned to a particular alphabet 2. Each different alphabet has a unique number. 3. All the same alphabet have the same number. 4. The number should satisfy all the operations that any normal number does.
Answer	1,3
	2,4

1,2,4

✅ 1,2,3,4

Points: **1**

4. Multiple Choice: Q3.: .Reinforcement learning is a _____...

Question	.Reinforcement learning is a _____method, in which a learning agent gets a reward for each right action and gets a penalty for each wrong action. The agent learns automatically with these feedbacks and improves its performance.
Answer	✅ feedback-based learning
	supervised learning
	unsupervised learning
	none of the above

Points: **1**

5. Multiple Choice: Q4.: Which of the following is the correct...

Question	Which of the following is the correct order of major steps involved in Machine learning life cycle ?
Answer	✅ Gathering Data,Data preparation,Train the model,Test the model,Deployment
	Data preparation , Data preparation,Train the model,Test the model,Deployment

Gathering Data,Data preparation,Test the model,train the model ,Deployment

None of the above

Points: **1**

6. Multiple Choice: Q5.: It is not necessary that data we have...

Question	It is not necessary that data we have collected is always of our use as some of the data may not be useful. In real-world applications, collected data may have various issues, including: a.Missing Values b.Duplicate data c.Invalid data d.Noise So, we use various filtering techniques to clean the data. Which of the above are correct options ?
Answer	a and b
	b and c
	c and d
	✅ all of the above

Points: **1**

7. Multiple Choice: Q6.: In supervised learning, models are tr...

Question	In supervised learning, models are trained using _____ dataset, where the model learns about each type of data.
	✅

Answer   Labelled

_____

Unlabelled

_____

Unprocessed
None of the above

_____

None of the above

Points: **1**

8. **Multiple Choice: Q7.: Which of the following are classifica...**

Question	Which of the following are classification algorithms ? a.Random forest b.Bayesian regression c.Support Vector Machine d.Logistic regression
Answer	a, b, c
	a,b,d
	✅ a,c,d
	all of the above

Points: **1**

9. Multiple Choice: Q8.: The goal of unsupervised learning is ...

Question	The goal of unsupervised learning is to
Answer	✅ find the underlying structure of dataset, group that data according to similarities, and represent that dataset in a compressed format
	find a mapping function to map the input variable(x) with the output variable(y).
	Both a and b
	None of the above

Points: **1**

10. Multiple Choice: Q9.: Definition of Clustering : /**/ do...

Question	Definition of Clustering :
Answer	✅ It is a method of grouping the objects into groups such that objects with most similarities remains into a group and has less or no similarities with the objects of another group. It finds the commonalities between the data objects and categorizes them as per the presence and absence of those commonalities.
	It is an unsupervised learning method which is used for finding the relationships between variables in the large database. It determines the set of items that occurs together in the dataset. Association rule makes marketing strategy more effective.
	It is a learning approach in which a learning agent gets a reward for each right action and gets a penalty for each wrong action. The agent learns automatically with these feedbacks and improves its performance.

None of the above

☐ **11. Multiple Choice: Q10.: Definition of Association: /**/ do...**

Points: 1

Question	Definition of Association:
Answer	✅ It is an unsupervised learning method which is used for finding the relationships between variables in the large database. It determines the set of items that occurs together in the dataset. The rule makes marketing strategy more effective.
	It is a method of grouping the objects into clusters such that objects with most similarities remains into a group and has less or no similarities with the objects of another group. It finds the commonalities between the data objects and categorizes them as per the presence and absence of those commonalities.
	It is a learning approach in which a learning agent gets a reward for each right action and gets a penalty for each wrong action. The agent learns automatically with these feedbacks and improves its performance.
	None of the above

☐
12. Multiple Choice: Q11.: Which of the following are unsupervis...

Points: 1

Question	

Which of the following are unsupervised algorithms ?

a.K-means clustering

b.KNN (k-nearest neighbors)

c.Hierarchal clustering

d.Decision Tree

Answer	
✅ a, c	
a,b,d	
a,c,d	
b,d	

Points: **1**

13. Multiple Choice: Q12.: Which of the following statements a...

Question

Which of the following statements are true ?

a. Dependent Variable: The main factor in Regression analysis which we want to predict or understand is called the dependent variable. It is also called target variable.

b.Independent Variable: The factors which affect the dependent variables or which are used to predict the values of the dependent variables are called independent variable, also called as a predictor.

c.Outliers: Outlier is an observation which contains either very low value or very high value in comparison to other observed values. An outlier may hamper the result, so it should be avoided.

d.Multicollinearity: If the independent variables are highly correlated with each other than other variables, then such condition is called Multicollinearity. It should not be present in the dataset, because it creates problem while ranking the most affecting variable. e.Underfitting and Overfitting: If our algorithm works well with the training dataset but not well with test dataset, then such problem is called Overfitting. And if our

Answer

a,c,d,e

a,b,c,d

a,c

✅ a,b,c,d,e

Points: 1

14. Multiple Choice: Q13.: State true or false . Logistic regres...

Question	State true or false . Logistic regression uses sigmoid function or logistic function which is a complex cost function. This sigmoid function is used to model the data in logistic regression. The function can be represented as: $f(x)=f(x)=1/(1+e^{\wedge}(-x))$ $f(x)=$ Output between the 0 and 1 value. x= input to the function e= base of natural logarithm.
Answer	✅ True
	False

Points: 1

15. Multiple Choice: Q14.: Which of the following statements are...

Question	Which of the following statements are true in case of SVM ? a.Kernel: It is a function used to map a lower-dimensional data into higher dimensional data. b.Hyperplane: These lines create a margin for datapoints. c.Boundary line: In general SVM, it is a separation line between two classes, but in SVR, it is a line which helps to predict the continuous variables and cover most of the datapoints. d.Support vectors: Support vectors are the datapoints which are nearest to the hyperplane and opposite class.
Answer	a,c

a,b,c

✅ a,d

a,c,d

Points: **1**

16. Multiple Choice: Q16.: The main goal of SVR is to consider t...

Question	The main goal of SVR is to consider the maximum datapoints within the boundary lines and the hyperplane (best-fit line) must contain a maximum number of datapoints.State true or false .
Answer	✅ True
	False

Points: **1**

17. Multiple Choice: Q17.: Which of the following are unsupervis...

Question	Which of the following are unsupervised algorithms ? a.K-means clustering b.KNN (k-nearest neighbors) c.Hierarchal clustering d.Decision Tree
Answer	✅ a,b,c
	a,b,d
	a,c,d
	b,d

Points: 1

18. **Multiple Choice: Q18.: Which of the following statements are...**

Question	Which of the following statements are true for ANN? STATEMENT A:Inputs to the network are represented by the mathematical symbol, xn ; STATEMENT B:Each of these inputs are multiplied by a connection weight , wn ; THEN sum = w1 x1 + ……+ wnxn ; STATEMENT C:These products are simply summed, fed through the transfer function, f(sum) to generate a result and then output.
Answer	✅ a,b,c
	a and b only
	b and c only
	a and c only

Points: 1

19. **Multiple Choice: Q19.: Y= b0+b1x1+ b2x2+ b3x3+.....+ bnxn ....**

Question	Y= b0+b1x1+ b2x2+ b3x3+.....+ bnxn …….. (a) Where, Y= Output/Response variable ; b0, b1, b2, b3 , bn....= Coefficients of the model ; x1, x2, x3, x4,...= Various Independent/feature variable ; The equation (a) stands correct for :
Answer	✅ Multiple linear regression
	Linear regression
	Logistic regression
	none of the above

Points: 1

20. **Multiple Choice: Q20.: Since machine learning model complete...**

| Question	Since machine learning model completely works on mathematics and numbers, but if our dataset would have a categorical variable, then it may create trouble while building the model. So it is necessary to encode these categorical variables into numbers.State true or false
Answer	✅ True
	False

21. **Multiple Choice: Where, the blue line is hyper...**

Points: 1

Question	
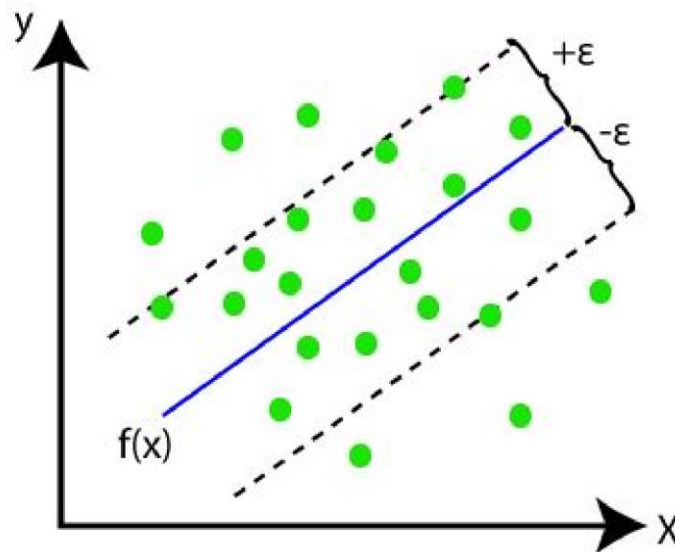
Where, the blue line is hyperplane, and the other two lines are boundary lines.

Answer	Linear Regression

Logistic regression

Decision tree

✅ Support Vector Machine/Regression

□ **22. Multiple Choice: This is an example of**   Points: 1

Question
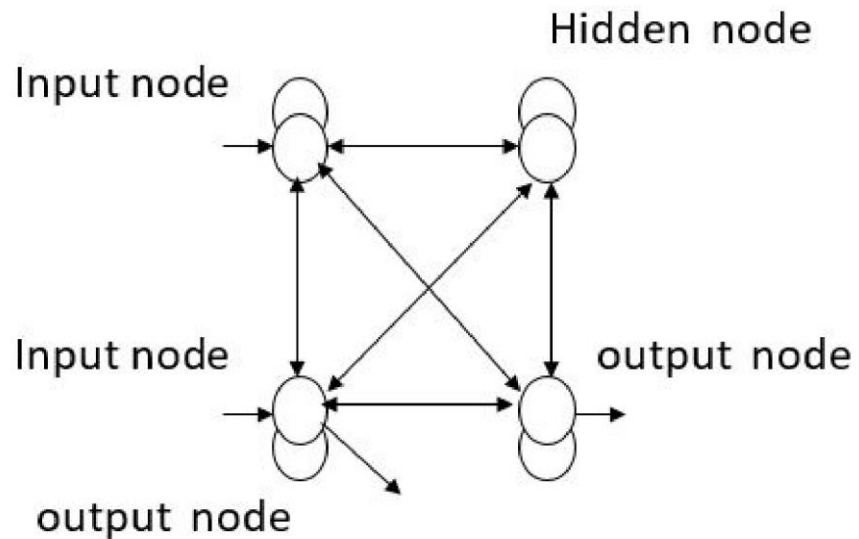
This is an example of

Answer

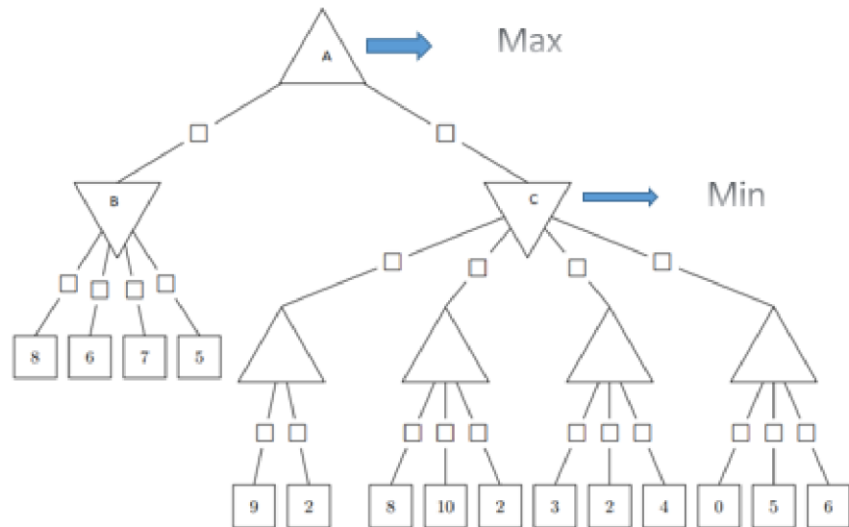Acyclic Neural network

Feed forward network

✅ Fully connected Network

Layered Network

□ **23. Multiple Choice: In the below Min-Max tree, What i...**   Points: 1

Question

In the below Min-Max tree,

What is the value of A+B-C?

Answer	
	0
	5
	4
✅	6

☐ **24. Multiple Choice: Consider the below statements: i) An ...**

Points: **1**

Question	Consider the below statements:
	i) An agent that senses only partial information about the state cannot be perfectly rational.
	Ii) Suppose an agent selects its action uniformly at random from the set of possible actions. There exists a deterministic task environment in which this agent is rational.
	iii) It is possible for a given agent to be perfectly rational in two distinct task environments.
	iv) A perfectly rational poker-playing agent never loses.
	Correct statements are:
Answer	i and ii only

ii and iv only

ii,iii and iv only

✅ None of the above

☐ **25. Multiple Choice: Identify the incorrect statements: a...**

Points: **1**

| Question	Identify the incorrect statements: a) Intelligence is the computational part of the ability to achieve goals in the world. b) "thinking rationally" is always better than human standards c) CSP solver can quickly eliminate large part of search space d) In a CSP, if a partial assignment is a solution, we can immediately discard further refinements of it. e) "Knowledge" and "reasoning" is important when dealing with partially observable environments f) Understanding natural language doesn't always require inferring hidden states
Answer	c only
	b only
	b and f only
	✅ b,d and f only

☐ **26. Multiple Choice: Consider the below state space proble...**

Points: **1**

Question	

Consider the below state space problem. Different heuristic values are defined in the table.
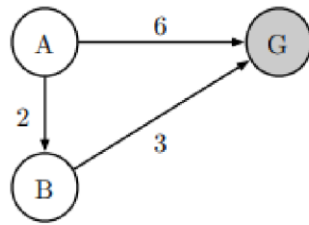
	h(A)	h(B)	h(G)
I	4	1	0
II	5	4	0
III	4	3	0
IV	5	2	0

Which among the following heuristics is admissible but not consistent?

Answer

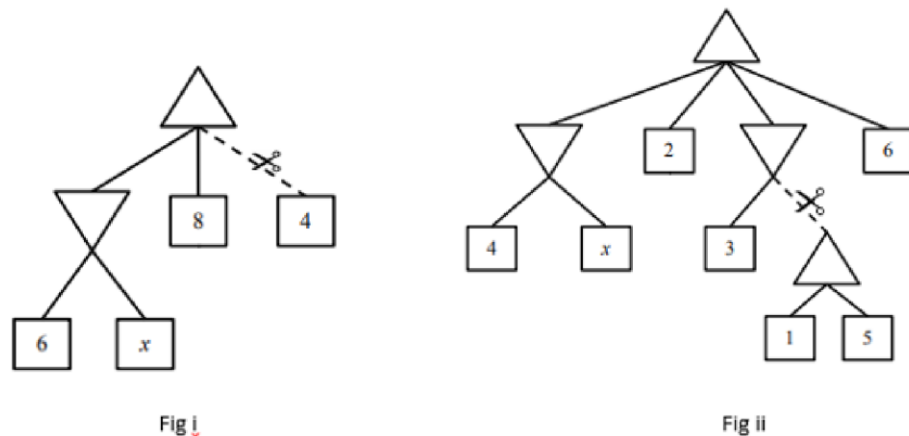I only

II and IV only

I,II,III only

✓ I and IV only

☐ **27. Multiple Choice: In the below Fig i and Fig ii, ...**   Points: **1**

Question   In the below Fig i and Fig ii, for what values of x, pruning will take place? Answer in [Fig I, Fig ii] format.

Fig i

Fig ii

Answer   [x>2, x>=2]

[x>=2, none]

[none, none]

✅ [none, x>=2]

☐ **28. Multiple Choice: Identify the incorrect statements: a...**   Points: **1**

Question	Identify the incorrect statements:
	a) The "Turing Test" is a test devised by Alan Turing to determine whether a secret code is breakable b) "Deep Blue" is the name of a chess playing computer program created at IBM c) "Deep Blue" is a chess playing program that defeated world champion Garry Kasparov d) Artificial Intelligence is an attempt to make computers do tasks for which humans are considered intelligent e) DFS always terminate on a finite search space f) BFS always terminate on a finite search space

Answer	a,b,e only
	c,e only
	b,f only
	✅ a only

☐ **29. Multiple Choice: Identify the correct statements: a) ...**   Points: **1**

| Question	Identify the correct statements:
	a) In Iterated Hill Climbing, the algorithm makes deterministic moves from the current state b) In Iterated Hill Climbing, he algorithm uses different start states chosen randomly c) Stochastic search is faster than deterministic search d) Stochastic search is guaranteed to locate global optima e) Simulated Annealing complete in a finite search space

Answer	a,c,e

b,d

b,e

✓ a,b

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30. Multiple Choice: Max has to play with W=Win, L=Loss, D...   Points: **1**

Question	Max has to play with W=Win, L=Loss, D=Draw. If MAX plays the move "C" then?
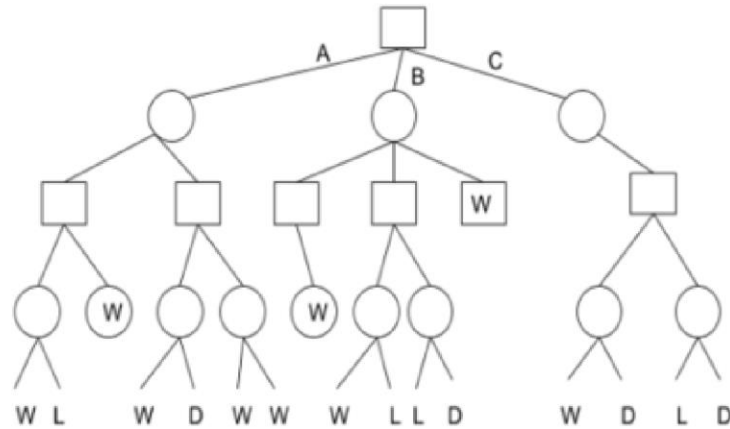
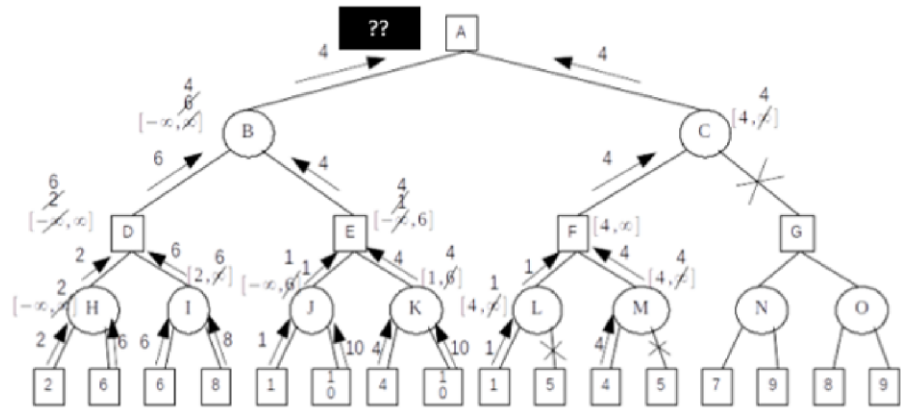| Answer	
	✓ Game draws
	MAX wins the game
	MIN wins the game
	Cannot say

---

31. Multiple Choice: What will come in place of "??" after...   Points: **1**

Question What will come in place of "??" after applying alpha-beta pruning to the below game problem?

Answer It's a Min-Max graph, can't be solved using alpha-beta pruning

---

$[\infty, 4]$

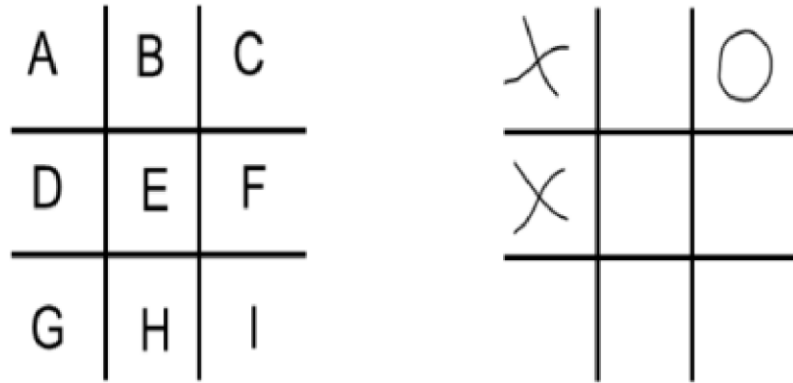$[4, \infty]$

✅ $[-4, \infty]$

☐ **32. Multiple Choice: You have to design an intelligent age...**   Points: **1**

Question

You have to design an intelligent agent to win this game. Your agent is "X" and your opponent is "O". It's your opponent's turn. Suppose he puts "O" at G location, then what should be the optimal move by your agent to maximize his chance of wining?
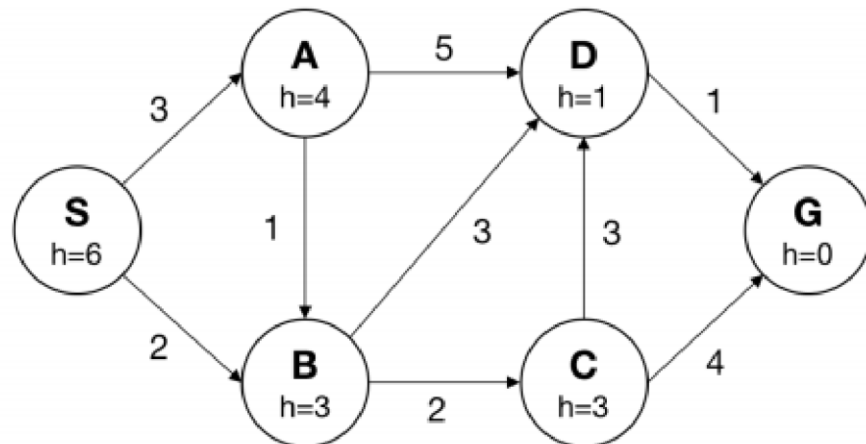

Answer	
	Game will draw in any case
	F
	I
✅	either F or I

□ **33. Multiple Choice: Consider the following graph. Broke t...**   Points: [1]

Question	Consider the following graph. Broke ties alphabetically.

What path would DFS return?

Answer	DFS would go in loop
	S-A-D-G
	✅ S-A-B-C-D-G
	S-A-B-D-C-G

☐ **34. Multiple Choice: Consider the below statements? a) If...**

Points: 1

Question	Consider the below statements? a) If h1(s) is a consistent heuristic, and h2(s) is an admissible heuristic, then the minimum of the two may be consistent. b) Admissibility of a heuristic for A∗ search implies consistency as well
Answer	✅ a is correct but b is wrong
	a is wrong but b is correct
	Both are correct and b is an explanation of a
	Both are correct and b is not an explanation of a

☐ **35. Multiple Choice: You are solving 8 queens problem and ...**

Points: 1

Question	

You are solving 8 queens problem and below is the current state space you are facing:

What will the value of "h" seeing the above state if h = number of pairs of queens that are attacking each other, either directly or indirectly?

Answer	
	15
	16
✅	17
	18

☐ **36. Multiple Choice: Find the incorrect statements? a) Mi...**   Points: 1

Question	Find the incorrect statements?

a) Min-Max is a complete DFS
b) Space complexity to solve a chess problem using Min-Max could be O(35 *100)
c) The number of game states with minimax search is exponential in the number of moves
d) It is possible to compute the correct minimax decision without looking at every node in the game tree
e) Pruning doesn't affect final result
f) The effectiveness of alpha-beta pruning is not dependent on the order of successors

Answer   a,b,c,e

                  a,d,e

                  e,f
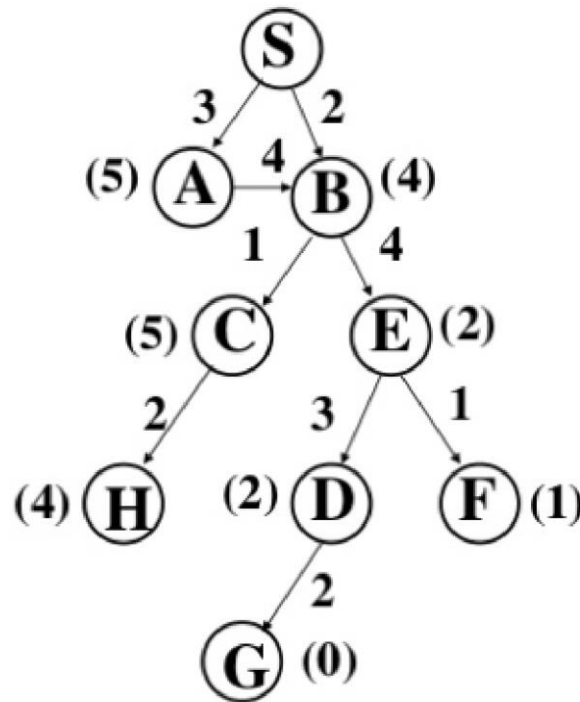
    ✅ d,f

☐ **37. Multiple Choice: Find the final path after applying AO...**   Points: **1**

Question   Find the final path after applying AO* algorithm to solve the below search tree.

Answer   ✅ SBEDG

                  SABEDG

                  SBCHEDG

                  SABCEDG

38. Multiple Choice: Suppose you try to separate these two...

Points: **1**

Question	Suppose you try to separate these two classes. What could be the complexity of your decision surface?
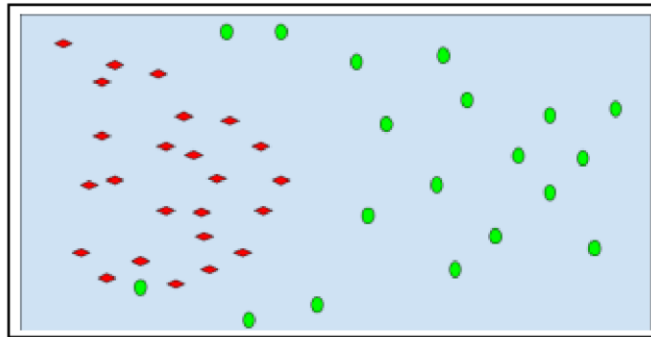
Answer

linear

✅ quadratic

cubic

exponential

39. Multiple Choice: Identify the correct option based on ...

Points: **1**

Question	Identify the correct option based on the below figure:

Answer

Fig a is classification and Fig b is regression

Fig b is classification and Fig a is regression

Fig a is simple linear regression and Fig b is multiple linear regression
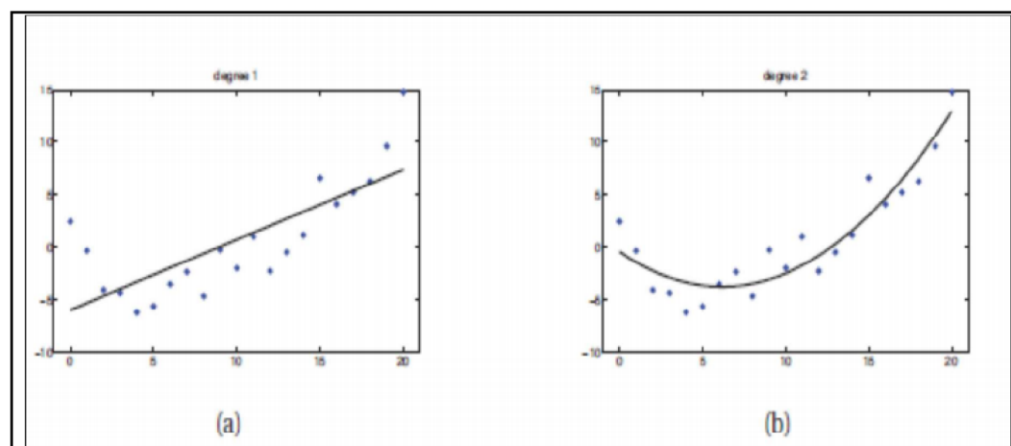

✓ none

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40. Multiple Choice: Overfitting is happening when number ...

Points: **1**

Question	Overfitting is happening when number of node is?
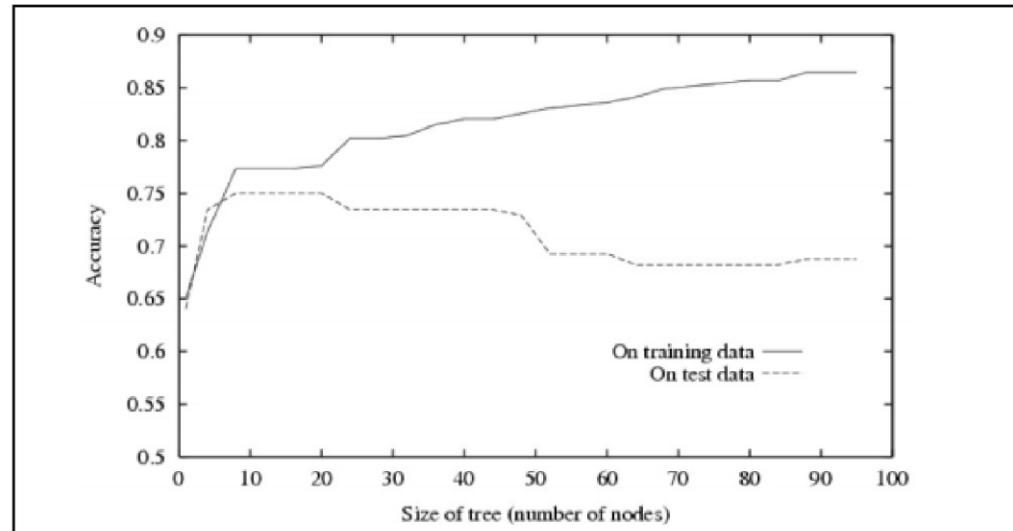
Answer	5

✓ 20

30

Model is underfitting

---

41. Multiple Choice: What is the logical translation of th...

Points: **1**

Question	What is the logical translation of the following statement?

"There exist some people who are not my friend and are not perfect"

F(x) ==> x is my friend

P(x) ==> x is perfect

Answer	$\exists x (F(x) \wedge \sim P(x))$

∃x (~F(x) ∧ P(x))

∃x (~F(x) ∧ ~P(x))

✅ None of the mentioned

☐ **42. Multiple Choice: Convert the following statements into...**   Points: **1**

Question	Convert the following statements into First order logic? not all Rainy days are Cold
Answer	∀d(Rainy(d) ∧ ~Cold(d))
	∀d(~Rainy(d) → Cold(d))
	∃d(~Rainy(d) → Cold(d))
	✅ ∃d(Rainy(d) ∧ ~Cold(d))

☐ **43. Multiple Choice: Convert the following statements into...**   Points: **1**

Question	Convert the following statements into First order logic? There exists a number such that if it is rational, it is real
Answer	✅ ∃x(rational(x) → real(x))
	∀x(real(x) → rational(x))
	∃x(real(x) ∧ rational(x))
	∃x(real(x) ∨ rational(x))

☐ **44. Multiple Choice: Consider the following well-formed fo...**   Points: 1

Question	Consider the following well-formed formulae: I. $\neg\forall x(P(x))$ II. $\neg\exists x(P(x))$ III. $\neg\exists x(\neg P(x))$ IV. $\exists x(\neg P(x))$ Which of the above are equivalent?
Answer	I and III
	✅ I and IV
	II and III
	II and IV

☐ **45. Multiple Choice: Convert the following statements into...**   Points: 1

Question	Convert the following statements into First order logic? "Gold and diamond are precious". The following notations are used: G(x): x is a gold D(x): x is a diamond P(x): x is precious
Answer	$\forall x(P(x) \Longrightarrow (G(x) \wedge D(x)))$
	$\forall x((G(x) \wedge D(x)) \Longrightarrow P(x))$
	$\exists x((G(x) \wedge D(x)) \Longrightarrow P(x))$

$\checkmark$ $\forall x((G(x) \lor D(x)) \Longrightarrow P(x))$

☐ **46. Multiple Choice: Which is not a type of First Order Lo...**

Points: **1**

Question	Which is not a type of First Order Logic (FOL) Sentence?

Answer	Atomic sentences
	$\checkmark$ Quantified sentence
	Simple sentence
	Complex sentences

☐ **47. Multiple Choice: Which one is not Familiar Connectives...**

Points: **1**

Question	Which one is not Familiar Connectives in FOL?

Answer	and
	$\checkmark$ or
	not
	iff

☐ **48. Multiple Choice: Which is not Familiar Connectives in ...**

Points: **1**

Question	Which is not Familiar Connectives in First Order Logic?

Answer	Reference

✅ Resolution

Reform

None of the mentioned

☐ **49. Multiple Choice: Which is called the conjunction of di...**

Points: **1**

Question	Which is called the conjunction of disjunctions of literals?

Answer	✅ Conjunctive Normal form
	Disjunctive Normal form
	Normal form
	All of the mentioned

☐ **50. Multiple Choice: What will happen when the two literal...**

Points: **1**

Question	What will happen when the two literals are identical in the Resolution?

Answer	Remains the same
	We added them as three
	✅ Reduced to single
	None of the mentioned

☐ **51. Multiple Choice: Which problem will start from goal st...**

Points: **1**

Question	Which problem will start from **goal state** to solve a problem?

Answer	Forward Chaining
	✅ Backward Chaining
	Hill-Climbing algorithm
	Resolution

☐ **52. Multiple Choice: Choose the correct option A: A Knowl...**

Points: 1

Question	Choose the correct option A: A Knowledge Base is a set of facts (statements) B: New sentence will not be derived from the KB using inference.
Answer	A is true, B is true
	A is false, B is true
	✅ A is true, B is false
	A is false, B is false

☐ **53. Multiple Choice: How many types of quantifiers exist i...**

Points: 1

Question	How many types of quantifiers exist in FOPL?
Answer	✅ 2
	3
	1
	4

☐ **54. Multiple Choice: Default reasoning is the type of- ...**   Points: **1**

Question	Default reasoning is the type of-

Answer	Monotonic Reasoning
	✅ Non-monotonic Reasoning
	Analogical Reasoning
	None of the mentioned

☐ **55. Multiple Choice: A company is having 9 workers. In how...**   Points: **1**

Question	A company is having 9 workers. In how many different ways we can create team of 5 workers?

Answer	132
	✅ 126
	84
	72

☐ **56. Multiple Choice: 3 children are to be selected from 10...**   Points: **1**

Question	3 children are to be selected from 10 children for prize distribution. If the 3 prize are designated first, second and third, in how many different ways could they be awarded?

Answer	✅ 720
	360

540

1080

□ **57. Multiple Choice: Bayes rule can be used for… /**/ ...**   Points: 1

Question	Bayes rule can be used for…

Answer	Solving queries
	Increasing complexity
	Decreasing complexity
✅	Answering probabilistic query

□ **58. Multiple Choice: A Bayesian Networks is given to you ...**   Points: 1

Question	

A Bayesian Networks is given to you

P(B)
0.001

P(E)
0.002

B	E	P(A|B,E)
t	t	0.95
t	f	0.94
f	t	0.29
f	f	0.001

t	0.90
f	0.05

t	0.70
f	0.01
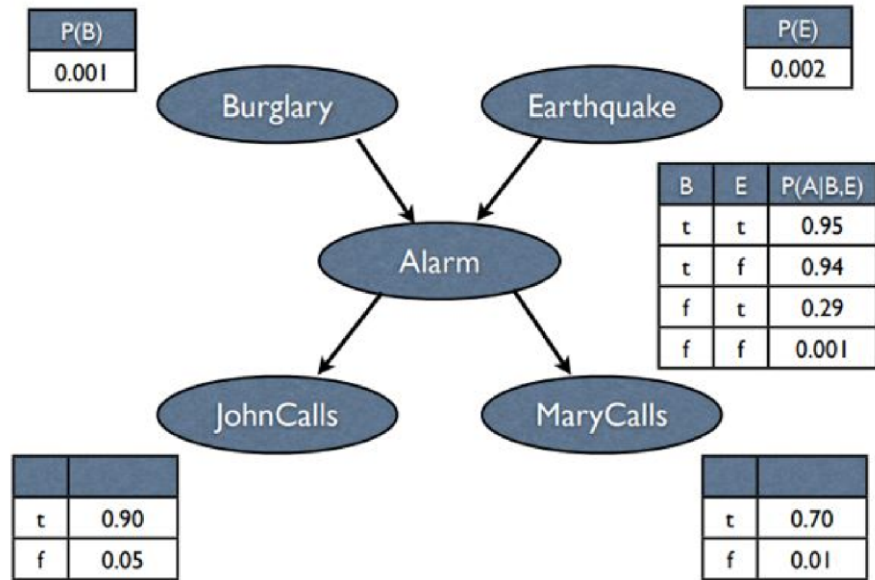
Problem:

What's the probability that an alarm has sounded, there was neither an earthquake nor a burglary, and both John and Mary called?
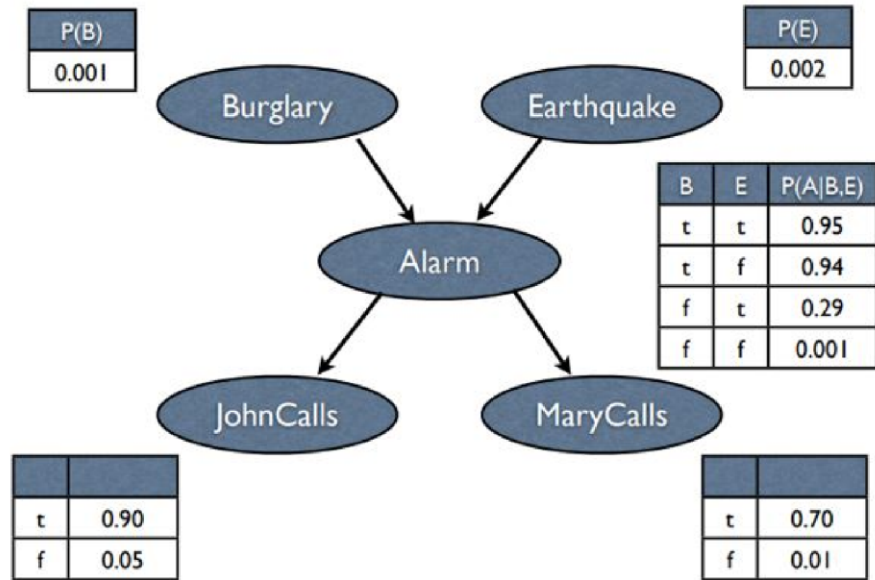
Answer

0.00067

✅ 0.00062

0.00072

0.00069

☐ **59. Multiple Choice: A Bayesian Networks is given to you ...**   Points: 1

Question

A Bayesian Networks is given to you

Problem:

What's the probability that an alarm has sounded, there was a burglary not earthquake, and both John and Mary called?
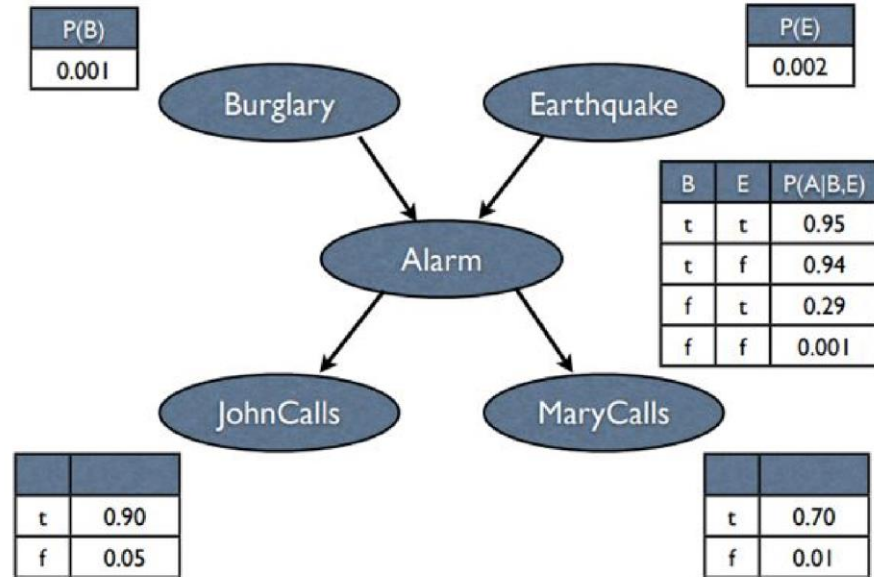
Answer	
✅	0.00059
	0.00061
	0.00065
	0.00063

☐ **60. Multiple Choice: A Bayesian Networks is given to you ...**   Points: 1

Question

A Bayesian Networks is given to you

P(B)
0.001

P(E)
0.002

Burglary   Earthquake

Alarm

B	E	P(A|B,E)
t	t	0.95
t	f	0.94
f	t	0.29
f	f	0.001

JohnCalls   MaryCalls

t	0.90
f	0.05

t	0.70
f	0.01

Problem:

What's the probability that an alarm has sounded, there was neither an earthquake nor a burglary but only john called?

Answer

0.00052

0.00062

✅ 0.00026

0.00038

Select: All None   Select by Type: - Question Type - ▾

Points [   ]   Update and Regrade | Hide Question Details

← OK