**Instructions:**

1. Read the slides of each part  as well as from other resources

2. Then practice questions here and then check the answer in answer MCQ ai docs

3. Note that you need to practice questions beyond this docx too. For that, read theory slides and other ai resources.

# PANA Computer Mock Test 1

49 The father of AI is ___
a. Alan Turing
b. John McCarthy
c. Warren McCulloh
d. Elon musk

50 Problem space is an ____ space

a. Virtual
b. Abstract
c. Search
d. None of these

51 The conditional statement of P->Q

a. If P, then Q
b. If P, Q
c. P is sufficient for Q
d. All the above

51. ____ emphasize what to do to solve a given problem.

a. Procedural knowledge
b. Declarative knowledge
c. Tacit knowledge
d. Explicit knowledge

53. ____ has the ability to learn without being explicitly programmed

a. Application learning
b. Machine learning
c. Neural network
d. Computer vision

54. Artificial neural system are called

a. Neural networks and neurocomputers
b. Parallel distributed processors
c. Connectionists system
d. All the above

77. Search algorithms are commonly evaluated in terms of:

a. Completeness, time complexity, space complexity, optimality
b. Preparedness, time complexity, space complexity, Admissibility
c. Completeness, constant complexity, logarithmic complexity, optimality
d. Preparedness, time complexity, Quadratic complexity, Admissibility

78. To form the ___ of the conditional statement, take the negation of both the hypothesis and the conclusion of the statement. The ___ of “if it rains, then they cancel hiking is “if they do not cancel hiking, then it does not rain.”

a. Contrapositive, contrapositive
b. Converse, inverse
c. Inverse, contrapositive
d. Inverse, converse

# PANA Computer Mock Test 2

49. Based on __ parameter AI is categorized.

a. Functionality
b. Durability
c. Capability
d. Both A and C

50. LIFO is___ where as FIFO is __

a. Stack, Queue
b. Queue, Stack
c. Linear Queue, Stack
d. Stack. Circular Queue

51. __ _ represents a knowledge of some experts in a field or subject

a. Procedural knowledge
b. Declarative knowledge
c. Meta knowledge
d. Structural knowledge
e. heuristics_ knowledge

52. In ___ the computer makes inferences and arrive at the conclusion.

a. User interface
b. Expert system
c. Inference engine
d. Natural language processing

53. __ learning model takes direct feedback to check if it is predicting correct output or not.

a. Un-supervised
b. Reinforcement
c. Supervised
d. Semi-supervised

54. The __ can be used to train neural networks for pattern recognition

a. Hebbian rule
b. McCulloh pits neuron
c. Hopfield network
d. Genetic Algorithm

73. What is the time complexity of breadth-first traversal of a graph?

2 points

a. O(V+E)
b. O(V^2)
c. O(E^2)
d. O(E log V)

BFS is O(V + E), where V is the number of vertices and E is the number of edges in the graph

77. To form the __ of the conditional statement, interchange the hypothesis and the conclusion. The __ of “if it rains, then they cancel the hiking” is “if they cancel hiking, then it rains.”

2 points

a. Converse, inverse
b. Converse, converse
c. Inverse, converse
d. Converse, contrapositive

78. __ is the time and ___ is the space complexity of DFS.

2 points

a. O(b^m), O(bm)

b. O(b^m+1), O(bm)
c. O(b^m), O(bm^2)
d. O(b^m), O(b^m)

# PANA Computer Mock Test 3

49. A rational agent is an agent that forever does the right thing.

True
False
Partially True
Completely False

50. __ explores the state space

state process
search process
problem process
successor function

51. The __ of propositional logic provide the means to perform logical proofs or deductions.

Inference rules
Commutativity rules
Associativity rules
Idempotency rules

52. In __ the computer system advices the non-experts and explains, if necessary the actual logic behind the advice which it has provided.

a. User interface
b. Expert system
c. Inference engine
d. Natural language processing

53. ___ is a rule-based ML technique which finds out some very useful relations between parameters of a large data set.

Regression
Classification
Association
Clustering

54. The range of Re-Lu function is from

0 to infinity
-1 to 1
infinity to 0
0 to 1

77. Proposition ∃x ∀ y p(x, y) means ?

2 points

There exists some x such that p (x, y) is false for every y.
There exists some x such that p (x, y) is true for every x.
There exists some y such that p (x, y) is false for every y.
There exists some x such that p (x, y) is true for every y.

78. __ is the time and ___ is the space complexity of Uniform cost search. consider b= branching factor and d= depth of the search tree.

2 points

a. O(b^(d+1)), O(b^d)
a. O(b^(d)), O(b^d)
a. O(b^(d+1)), O(b^(d+1))
d. O(b^d), O(b^(d+1))

# PANA Computer Mock Test 4

49. Environment does not change with time but, performance score does is ____

Dynamic Environment
Semi-Dynamic Environment
Deterministic Environment
Sequential Environment

50. For making decision of win/lose, we apply ___ algorithm on game tree.

Greedy search Algorithm
Hill climbing Algorithm
Mini Max Algorithm
BFS/DFS Algorithm

51. ___ knowledge representation consists of <condition, action > pairs.

Semantic Network Representation
Logical Representation
Frame Representation
Production Rules

52. A computer vision technique that relies on image templates is

Edge detection
Binocular vision
Model-based vision
Robot vision

53. ___ is one of the forms of machine learning.

Rote learning
Induction learning
Explanation based learning
All of the above

54. A ___ is an algorithm for supervised learning of binary classifiers. This algorithm enables neurons to learn and processes elements in the training set one at a time

Hebbian learning
Delta learning
Perceptron
All of the above

77. . A 3-input neuron is trained to output a zero when the input is 110 and a one when the input is 111. After generalization, the output will be zero when and only when the input is?

2 points

000 or 110 or 011 or 101
010 or 100 or 110 or 101

000 or 010 or 110 or 100
100 or 111 or 101 or 001

78. __ is the time and ___ is the space complexity of Iterative deepening search. consider b= branching factor and d= depth of the search tree.

2 points

a. O(b^(d+1)), O(b^d)
b. O(b^d), O(b*d)
c. O(b^(d+1)), O(b^(d+1))
d. O(b^d), O(b^(d+1))

# PANA Computer Mock Test 5

49. __ is the goal of an AI.

to extract scientific purpose
to solve artificial problems
to solve real world problems
to explain various sorts of intelligence

50. The solution of the problem space is

combination of operations and objects that achieve the goals
combination of Abstract space and objects that achieve the goals
combination of problem and solution that achieve the goals
combination of operation and abstract that achieve the goals

51. Logic is

specify the meaning of mathematical statements
basis of all mathematical and automated reasoning
practical application to the design of computing machines
all of the above

52. ___ is the main challenge of NLP.

handling ambiguity of sentences
handling tokenization
handling POS- tagging
all of the mentioned

53. ___ deals with " how can I group these set of items?'

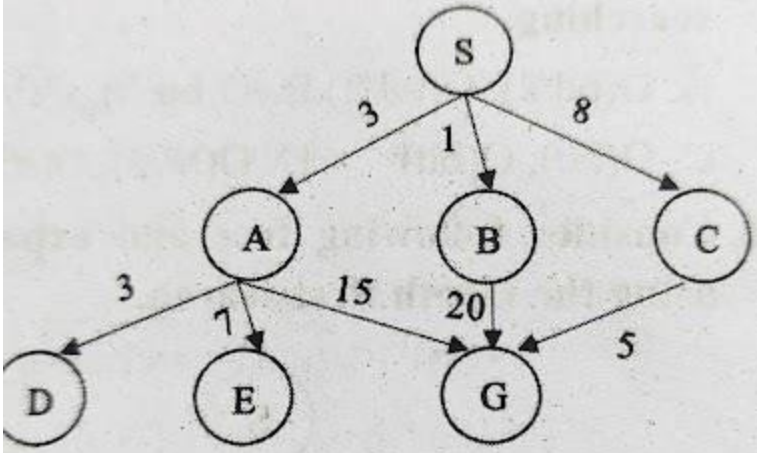
Regression
Classification
Association
Clustering

54. If two neurons on either side of synapse are activated simultaneously, the strength of the synapse will increase is

Hebbian learning rule
Perceptron learning rule
Delta learning rule
Genetic Algorithm learning rule

77.

2. Consider following tree and expand using the Uniform cost search.




A. 7 expanded nodes are: S, A, D, E, B, C, G

B. 7 expanded nodes are: S, C, B, E, D, C, G

C. 7 expanded nodes are: S, A, D, B, C, E, G

D. 7 expanded nodes are: S, B, C, A, D, E, G

a b c d

S→B→A→D→C→E→G

# PANA Computer Mock Test 6

49. Environment can change while agent is thinking is

static environment
dynamic environment
deterministic environment
sequential environment

50. In Alpha - Beta Pruning Algorithm, Pruning ___ the affect result.

might affect
does not affect
affect
sometimes affect, sometime doesnt affect

51. Every complete sentence contains two parts:

object, contingency
object, predicate
object, hypothesis
object, tautology

52. Introspection, Observation Induction , Protocol Analysis, Prototyping and Interviewing are the techniques of _____

Knowledge Processing
Knowledge elaboration
Knowledge acquisition
Knowledge debugging

Knowledge-level debugging is the act of finding errors in knowledge bases with reference only to what the symbols mean.

53. According to the topology, ANN can be classified as

feed forward Network
feed backward Network
both feed forward and backward network
none

54. The ___ is commonly used for the auto association and optimization tasks

Hopfield neural network
Biological neural network
Hamming neural network
McColloch Pits neural network

77. The truth values of traditional set theory is ___ and that of fuzzy set is ____

2 points

either 0 or 1, between 0 and 1
between 0 and 1, only 1
between 0 and 1, only 0
either 0 or 1, either 0 or 1

78. Which is true for Decision theory?

2 points

Decision Theory = Probability theory + utility theory
b) Decision Theory = Inference theory + utility theory
c) Decision Theory = Uncertainty + utility theory
d) Decision Theory = Probability theory + preference

# PANA Computer Mock Test 7

49. Who is the inventor of Artificial Intelligence?

Geoffrey Hinton
Andrew Ng
John McCarthy
Jürgen Schmidhuber

50. The total number of states in the state-space search?

3
4
5
6
initial state, actions, goal test and step cost.

51. Which of the following are the advantages of inferential knowledge?

i. It has a set of strict rules.

ii. It can be used to derive more facts.

iii. Here the truths of new statements can be verified.

i and ii only
ii and iii only
i and iii only
All i, ii and iii

77. ___ is the time and __ is space complexity of Best First search.

2 points

O(b)^d, O(b)^d
O(b)^d+1, O(b)^d
O(b)^d, O(b)^d+1
O(b)^d+1, O(b)^d+1

78. What is the total number of quantification available in artificial intelligence?

2 points

1
2
3
5

52. What is the difference between natural language processing and machine learning?

Natural language processing is a type of machine learning
Machine learning is a type of natural language processing
Natural language processing is focused on language-specific tasks, while machine learning is more general
There is no difference between natural language processing and machine learning

53. Fuzzy Set theory defines which of the following fuzzy operators?

AND operator
OR operator
NOT operator
All of these

54. What is meant by generalized in statement “backpropagation is a generalized delta rule” ?

because delta rule can be extended to hidden layer units
because delta is applied to only input and output layers, thus making it more simple and generalized
it has no significance
none of the mentioned

# PANA Computer Mock Test 8

49. What is the expansion if PEAS in task environment?

Peer, Environment, Actuators, Sense
Perceiving, Environment, Actuators, Sensors
Performance, Environment, Actuators, Sensors
None of the mentioned

50. How many types are available in uninformed search method?

3
4
5
6
The types of uninformed search method are Breadth-first, Uniform-cost, Depth-first, Depth-limited and Bidirectional search.

51. Which of the following is an example of a knowledge representation language used in AI?

1 point

HTML
CSS
Prolog
Python

52. Interpretative knowledge is also known as?

descriptive knowledge
procedural knowledge
declarative knowledge
reverse knowledge

53. How many types of feedback does reinforcement provide?

1
2
3
4

54. Which is a false statement?

in ANNs, neurons usually have a multiple output.
In BNNs, neurons have multiple dendrites that receive input from multiple sources
In ANNs, neural pathways are usually simpler and predetermined by the architecture of the network.
In both BNNs and ANNs, synapses are the points of connection between neurons, where information is transmitted

77. What is the heuristic function of greedy best-first search?

2 points

f(n) != h(n)
f(n) < h(n)
f(n) = h(n)
f(n) > h(n)

78. If truth values of statement  is true and  is false, then the truth value of P ^ Q (conjunction of  and  ) is _____.

2 points

T
F
T or F
T and F

# PANA Computer Mock Test 9

49. ___ is not an application of artificial intelligence

Computer Vision
Nature language processing
Containerization
Image Recognition

50. Free cell. 8 puzzle, Rubirk's cube is an example of ___

Deterministic Multi player
Deterministic Single player
Non Deterministic Single player
Non Deterministic Multi player

51. __ knowledge is also known as Imperative Knowledge

Procedural
Meta
Structural
Heuristic

52. Two key technologies drive ____ : convolutional neural network and deep learning, a type of machine learning

Computer Application generation
Computer vision
NLP
NLG

53. __ learning model does not take any feedback

Reinforcement
Supervised
Semi-supervised
Un-supervised

54. Which of the following is true about the backpropagation algorithm ?

it is supervised learning algorithm
it is an unsupervised learning algorithm
it is a reinforcement learning algorithm
it is a semi supervised learning algorithm

77. Which of the mentioned definitions correctly define 'move' for an AI agent?

2 points

When the agent moves from one place to another, then it is called the move of the agent
When the agent goes from one state to another, it is known as a move
Both (A) and (B)
None of the above

The "move" of an agent is defined with respect to the state it changes and not with respect to its actual position.

78. Which of the following statements is true about stochastic gradient descent?

2 points

It processes one training example per iteration
It is not preferred, if the number of training examples is large
It processes all the training examples for each iteration of gradient descent
It is computationally very expensive, if the number of training examples is large

# PANA Computer Mock Test 10

49. If there are a limited number of distinct, clearly defined, states of the environment , the environment is

discrete
continuous
static
dynamic

50. In alpha- beta pruning, the initial value of a alpha is ___ and beta is ____

negative infinity , positive infinity
-1, +1
positive infinity, negative infinity
+1, -1

51. ___ talks about what relationship exists between concept/ objects.

Procedural Knowledge
Declarative Knowledge
Structural Knowledge
Heuristic Knowledge

52. The _____ is one of the components of an expert system which represents facts and rules

Inference Engine
Knowledge Base
User Interface
Explanation Subsystem

53. After the selection process, the creation of a child occurs in the ___ step.

Fitness Assignment
Reproduction
Termination
Initialization

54. The backpropagation algorithm involves two phases. What are they?

forward propagation and backward propagation

feature selection and feature extraction
clustering and classification
regression and classification

77. To form the __ of the conditional statement, take the negation of both the hypothesis and the conclusion. The ___ of "If it rains, then they cancel hiking" is " If it does not rain, then they don not cancel the hiking."

2 points

Inverse, Inverse
Inverse, converse
converse, Inverse
Inverse, contrapositive

78. The range of tanh function is from

2 points

0 to 2
-1 to 1
-1 to 0
0 to 1

# PANA Computer Mock Test 11

49. What is an ‘agent’?

Perceives its environment through sensors and acting upon that environment through actuators
Takes input from the surroundings and uses its intelligence and performs the desired operations
A embedded program controlling line following robot
All of the mentioned

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

Depth-first search
Breadth-first search
Bidirectional search
None of the mentioned

51. What does the bayesian network provides?

Complete description of the domain
Partial description of the domain
Complete description of the problem
None of the mentioned

52. What is the purpose of tokenization in NLP?

Identifying parts of speech
Removing stop words
Breaking text into words or phrases
Analyzing sentiment

53. Which kind of data does reinforcement learning use?

Labeled data
Unlabelled data
None
Both

54. What is a Boltzman machine?

A feedback network with hidden units
A feedback network with hidden units and probabilistic update
A feed forward network with hidden units
A feed forward network with hidden units and probabilistic update

77. Which of the following is not a type of AI?

2 points

Weak AI
Theory of Mind
Reactive Machines
All of the mentioned

78. A) Knowledge base (KB) is consists of set of statements.

B) Inference is deriving a new sentence from the KB.

2 points

a) A is true, B is true
b) A is false, B is false
c) A is true, B is false
d) A is false, B is true