

● live

NEW
VIDEO



available*



SUBSCRIBE



FAST TRACK REVISION

Day - 3

Artificial Intelligence

महत्वपूर्ण MCQ will boost
your performance...



Rashmi Prabha

Search



Academic
Enrichment
And Online
Tutoring



Online Classroom Program

UGC NET | GATE | KVS | NVS |
UNIVERSITY EXAMS

Enroll now for Free
Trial Session

20% OFF

Telegram



Website: www.combinecs.com



CombineCS The Extra Step

1.55K subscribers

CUSTOMIZE CHANNEL

MANAGE VIDEOS

HOME

VIDEOS

PLAYLISTS

COMMUNITY

CHANNELS

ABOUT



live NEW VIDEO available* SUBSCRIBE

FAST TRACK REVISION

Software Engineering

सभी महत्वपूर्ण topic को कवर करें एक ही वीडियो में..

Rashmi Prabha

MAHA MARATHON | Software Engineering all imp topics | 90%...

83 views • Streamed 18 hours ago

FAST TRACK REVISION SOFTWARE ENGINEERING

In this lecture educator will discuss all important concepts of Software Engineering very important session for all competitive exams. Attend live class of Software Engineering & get Last Minute Notes (LMN) for quick revision.

Last Minute notes available for Computer Science subjects:...

READ MORE

Positive

Revision

[P4D + Mock]
MCQ

Live class at 2pm

(Artificial Intelligence Revision class)

*It's time to be
serious so stop
saying and
start doing...*

CBSE | ICSE | Computer Science | UNIVERSITY | UGC NET CS | SET CS

Contact: +91-7666980624   /combinecs.com



Important topics
Mark Distribution

11.2
8.9

Approaches to AI → Search Technique - 6.7



learner doubt
2020
100 - 10 ^{6.7}

AI → learning
reasoning
knowledge repⁿ

Turing Test -
- HBL/M/C

Appⁿ
NLP
ANN
GA

RR
NLP
Reasoning

Planning Problem



Uninformed Search / Blind Search / Brute Force / Exhaustive Search

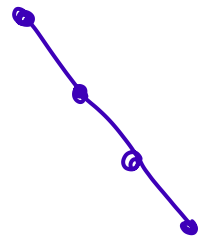
148

A

real, complex

MCS

Q1

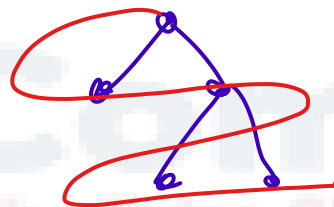


DFS - space $\rightarrow O(bm)$
linear
time $O(b^m)$

DFS +
BFS

1. **Breadth-first Search.** - Queue
2. **Depth-first Search.** - Stack, backtrack
3. **Depth-limited Search.** - limit - l
4. **Iterative deepening depth-first search.** small opt
5. **Uniform cost search.** min cost
6. **Bidirectional Search**
 - Forward \rightarrow
 - Backward \leftarrow

BFS



TRICK

BFS = Uniform
 $O(b^m)$

nodes consider
same
DFS
DLS
IDDFS

nodes consider T/S - $O(b^m)$

forward \rightarrow progression
Backward - regression

100% TRICK : Always optimal complete

2021

Greedy search - promising nodes

↓
max profit
min time

$$f(n) = g(n) + h(n)$$

S → C → goal
g(n) h(n)

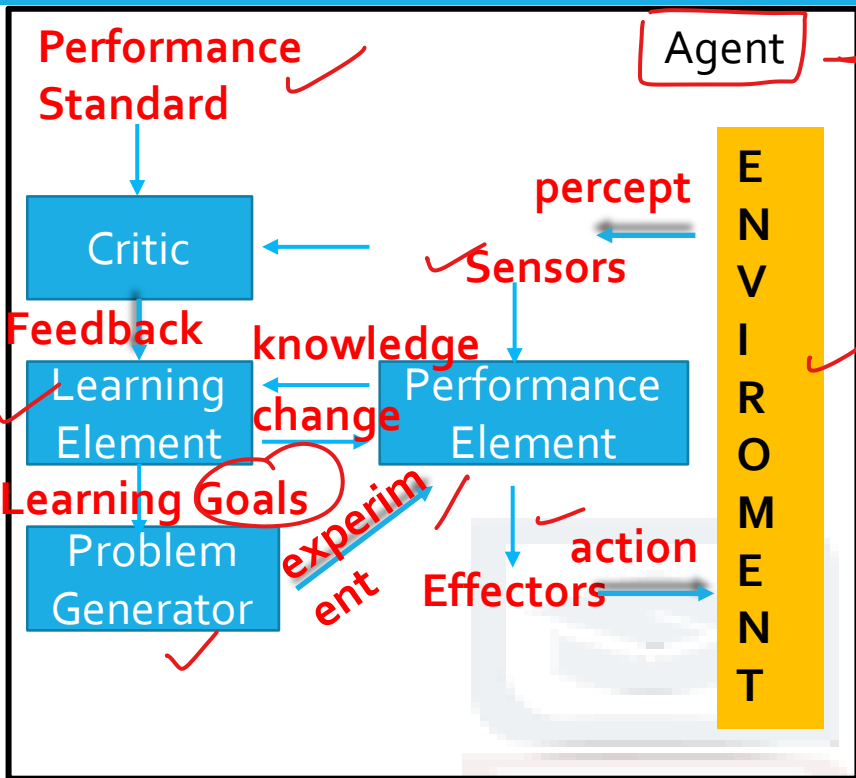
⇒ **Informed Search / Intelligent Search / Heuristic Search**

1. **Best First Search** *BFS + DFS*
Algorithm (Greedy/Recursive search)
2. A* Search Algorithm ALL O & C
3. Recursive best-first search
4. AO* Search Algorithm *Adv A**
5. Hill Climbing
6. Genetic Algorithm
7. SMA* (*A* Advance*) *Memory bound*

BFS (Greedy / Recursive / Uniform)

$$f(n) = h(n)$$

O & C - result guaranteed



Hill Climbing
= Types



PEAS
-1

Problem → solution

(AI)
2018
617

Dyna
2018-2020

Simple - node
Steepest - all

Stochastic - random

PO

GA → 2019 → binary
Discr Jun top

Fuzzy logic
= = 0 A(X) B
min-max



CSP Constraint 2, 4

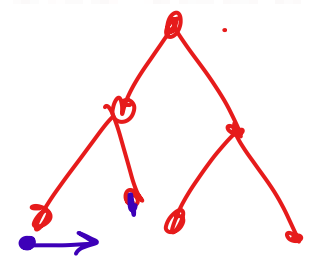
Graph coloring

Operator Subgoal - detect diff. b/w s - G

Puzzle

Minimax

DFS



≠

2018-2020

$\alpha - \beta$
DFS

Pruning

2021

- numerical

$\alpha \geq \beta$

DFS

$\alpha = \max = -\infty$

$\beta = \min = +\infty$

7

7



Expert system \rightarrow - KB \rightarrow defining } Semantic - Tree
 $=$ 5 phases $=$ AI reasoning } Slots - filler facts

KR - moderate
2020

FoPL $\forall \exists$ P \rightarrow Q
Resolution $\neg P \vee Q$

Inference

$a \vdash \underline{B}$

Sound entailment

if A then B

B, if A

$\underline{P \leftrightarrow Q}$
 \wedge conjunction

\vee disjunction











10 sec

Property

5

Q1) What is the function of an AI “Agent”?

- a) Mapping of goal sequence to an action
- b) Work without the direct interference of the people
- c) Mapping of precept sequence to an action
- d) Mapping of environment sequence to an action



CombineCS
The Extra Step



PEAS

Q1) What is the function of an AI “Agent”?

- ~~a) Mapping of goal sequence to an action~~
- b) Work without the direct interference of the people
- ~~c) Mapping of precept sequence to an action~~
- d) Mapping of environment sequence to an action



CombineCS
The Extra Step

Answer: c

Explanation: A math function that converts a collection of perceptions into actions is known as the agent function. The function is implemented using agent software. An agent is responsible for the actions performed by the machine once it senses the environment.



5

Q2) Which among the following constitutes to the incremental formulation of CSP?

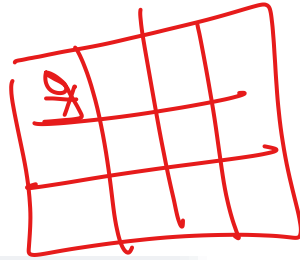
- a) Successor function ✓
- b) Path cost ✓
- c) Goal cost ✓
- d) All of the mentioned ✓



CombineCS
The Extra Step



Q2) Which among the following constitutes to the incremental formulation of CSP?



- a) Successor function
- b) Path cost
- c) Goal cost
- d) All of the mentioned

Answer: d

Explanation: Initial state: The empty assignment (\emptyset), in which all variables are unassigned.

Successor function: A value can be assigned to any unassigned variable, provided it does not conflict with previously assigned variables.

Goal test: The current assignment is complete.

Path cost: A constant cost (e.g., 1) for every step.



5

Q3) Strategies that know whether one non-goal state is “more promising” than another are called _____

- a) Informed & Unformed Search
- b) Unformed Search
- c) Heuristic & Unformed Search
- d) Informed & Heuristic Search



Q3) Strategies that know whether one non-goal state is “more promising” than another are called _____

- a) Informed & ~~Unformed~~ Search
- b) ~~Unformed~~ Search
- c) Heuristic & ~~Unformed~~ Search
- d) ~~Informed~~ & Heuristic Search

Answer: d

Explanation: Strategies that know whether one non-goal state is “more promising” than another are called informed search or heuristic search strategies.

5

Q4) Greedy search strategy chooses the node for expansion in _____

- a) Shallowest
- b) Deepest
- c) The one closest to the goal node
- d) Minimum heuristic cost



CombineCS
The Extra Step



Revision

Q4) Greedy search strategy chooses the node for expansion in _____

a) Shallowest → BFS

b) Deepest → DFS

c) The one closest to the goal node Greedy Search

d) Minimum heuristic cost → Uniform



Answer: c

Explanation: Sometimes minimum heuristics can be used, sometimes maximum heuristics function can be used. It depends upon the application on which the algorithm is applied.

5

$$f(n) = \underline{g(n)} + \underline{h(n)}$$

2pm

like



Q5) What is the evaluation function in greedy approach?

heuristic

- 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



combinecs



Best
BFS
greedy
Advance
A*

Q5) What is the evaluation function in greedy approach?

- ~~a) Heuristic function~~ $f(n) = h(n)$
- ~~b) Path cost from start node to current node~~ $f(n) = g(n)$
- ~~A* c) Path cost from start node to current node + Heuristic cost~~ $f(n) = g(n) + h(n)$
- ~~d) Average of Path cost from start node to current node and Heuristic cost~~

Answer: a

Explanation: $f(n) = h(n)$. A* p40

140
A* is optimal if h(n) is an admissible heuristic-that is, provided that h(n) never overestimates the cost to reach the goal. Refer both the example from the book for better understanding of the algorithms.

5

Q6) The action of the Simple reflex agent
completely depends upon _____

- a) Utility functions
- b) Learning theory
- c) Perception history
- d) Current perception



CombineCS
The Extra Step



4

Q6) The action of the Simple reflex agent completely depends upon _____

- a) Utility functions
- b) Learning theory
- c) Perception history
- d) Current perception

Answer: d

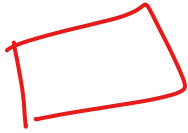
Explanation: These agents select actions based on the current perception, ignoring the rest of the perception history.

pyd

Simple reflex agent is based on the present condition and so it is condition action rule.

if-then-else Rule

5



Q7) External actions of the agent is selected by _____ ?

- a) Perceive
- b) Performance
- c) Learning
- d) Actuator

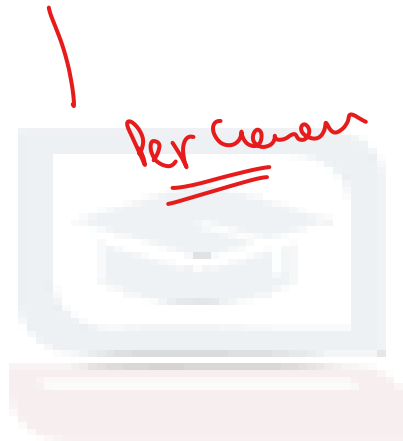


CombineCS
The Extra Step



Performance
element

Feedback



Q7) External actions of the agent is selected by _____

- a) Perceive
- b) Performance
- c) Learning
- d) Actuator

PEAS - Sensors

envⁿ

Answer: b

Explanation: It depends on how you want to improve and what the performance measures are.

5

Q8) What is perceptron?

- a) a single layer feed-forward neural network with pre-processing
- b) an auto-associative neural network
- c) a double layer auto-associative neural network
- d) a neural network that contains feedback



Q8) What is perceptron?

- a) a single layer feed-forward neural network with pre-processing
- b) an auto-associative neural network = ?
- c) a double layer auto-associative neural network ?
- d) a neural network that contains feedback ?

Answer: a

Explanation: The perceptron is a single layer feed-forward neural network. It is not an auto-associative network because it has no feedback and is not a multiple layer neural network because the pre-processing stage is not made of neurons.

Q1 ISRO

Neural networks are complex linear functions with many parameters.

True

- a) It has set of nodes and connections
- b) Each node computes its weighted input
- c) Node could be in excited state or non-excited state]

Q2

RNN (Recurrent neural network) topology involves backward links from output to the input and hidden layers.

An auto-associative network is equivalent to a neural network that contains feedback. The number of feedback paths (loops) does not have to be one.



$$w_i x_i$$

OR
AND
XOR

dear P!



COMBINECS THE EXTRA STEP



+91-7666980624

Artificial Intelligence Revision Notes

Last Minute Notes

LIMITED
OFFER!



@ combinecs.com

@99 only/-



👉 Follow us on Social media:

▶ YouTube : <https://www.youtube.com/c/CombineCSTheExtraStep>

👤 Facebook : <https://www.facebook.com/groups/combinecs>

📷 Instagram : <https://www.instagram.com/combinecs/>

Telegram **Group** : <https://t.me/RashmiCCS>

Telegram Channel : <https://t.me/combinecs>

👉 Join our WhatsApp group for (NET/SET/GATE):

<https://chat.whatsapp.com/GruovhRvste1nL8L2X1YQ3>

👉 Join our WhatsApp group for (JOB Notifications) :

<https://chat.whatsapp.com/ExM4CZ2ZKxzEgPvSfOXNFb>

👉 Join our WhatsApp group for (Training & Placements):

<https://chat.whatsapp.com/EB5umdja3BGJQijhxjEaij>

For any query regarding notes, pdf, feedback, suggestions

Mail us: combinecs2020@gmail.com

✨ For all our latest courses launched

visit: 🌐 combinecs.com

👤 Student Support:- team.combinecs@gmail.com ☎️ 7666980624

=====

“Effort Never Dies”

👍 Like || Share || Comment || Subscribe

A black and white photograph of a person's hands holding a pencil over an open book. The person is wearing a white shirt. The background is blurred, showing what appears to be a library or study area with bookshelves. The text 'Thank you' is overlaid in a white, italicized font on a black rectangular background in the upper left corner.

Thank you

*Post your doubts in comment section.
Stay subscribed for all updates.*