Started on	Tuesday, 20 April 2021, 9:45 AM
State	Finished
Completed on	Tuesday, 20 April 2021, 10:08 AM
Time taken	23 mins 24 secs
Grade	**11.15** out of 13.50 (**83**%)

Question **1**

Correct

Mark 1.50 out of 1.50

1 Minute: Match the sentence "Everybody likes somebody." with the corresponding formula

a. $\forall x \exists y \text{ Person}(x) \wedge \text{Person}(y) \wedge \text{Likes}(x, y)$

b. None of the mentioned

c. $\forall x \forall y \text{ Person}(x) \wedge \text{Person}(y) \wedge \text{Likes}(x, y)$

d. $\forall x \exists y \text{ Person}(x) \Rightarrow (\text{Person}(y) \wedge \text{Likes}(x, y))$ ✔

e. $\forall x \forall y \text{ Person}(x) \Rightarrow (\text{Person}(y) \wedge \text{Likes}(x, y))$

Your answer is correct.

The correct answer is:
$\forall x \exists y \text{ Person}(x) \Rightarrow (\text{Person}(y) \wedge \text{Likes}(x, y))$

Question **2**

Partially correct

Mark 5.15 out of 6.00

8 Minutes: Given Knowledge Base (KB) we need to decide whether or not the input goal is entailed by KB. The current KB is (given as clauses S1-S5):

S1: (P Q)

S2: (¬P Q)

S3: (P ¬Q)

S4: (¬P R)

S5: (¬P R S Q)

The input goal sentence is: (P ∧ Q ∧ R).

1 is the logic constant that is always true.

S4 and S5 resolve to give	Don't resolve ✔
The negated goal is:	(¬P ¬Q ¬R) ✔
S1 and S5 resolve to give	(Q R S) ✖
S3 and S4 resolve to give	(¬Q R) ✔
The goal is derivable from KB (If YES, give a paper resolution REFUTATION proof and send the photo).	True ✔
S5 and S3 resolve to give	None of the mentioned ✖
S1 and S2 resolve to give	(Q) ✔

Your answer is partially correct.

You have correctly selected 5.
The correct answer is:
S4 and S5 resolve to give → Don't resolve, The negated goal is: → (¬P ¬Q ¬R),

S1 and S5 resolve to give → (R S Q),

S3 and S4 resolve to give → (¬Q R),

The goal is derivable from KB (If YES, give a paper resolution REFUTATION proof and send the photo). → True, S5 and S3 resolve to give → 1,

S1 and S2 resolve to give → (Q)

Comment:
QRS is correct. Order is not important.

As for

S3: (P ¬Q) and S5: (¬P R S Q): the answer is True because it is either (¬Q R S Q) or (¬P R S P) and both have 2 complimentary literals. I hope you see that.

Question 3

Correct

Mark 1.50 out of 1.50

1.5 Minute: Match the statements: regarding inference rules:

An inference rule is sound if it:	Derives only formulas entailed by KB ✔
An inference rule is complete if it:	Derives all formulas entailed by KB ✔
KB entails a formula K if:	KB and the negation of the formula derive the empty clause ✔

Your answer is correct.

The correct answer is: An inference rule is sound if it: → Derives only formulas entailed by KB,
An inference rule is complete if it: → Derives all formulas entailed by KB,

KB entails a formula K if: → KB and the negation of the formula derive the empty clause

Question 4

Correct

Mark 1.50 out of 1.50

1 Minute: The sentence Good ⇒ Good is:

- a. Valid ✔
- b. None of the mentioned
- c. Satisfiable
- d. Unsatiisfiable
- e. Contradictory

Your answer is correct.

The correct answer is:
Valid

Question **5**

Correct

Mark 1.50 out of 1.50

1 Minute: Match the sentence "All persons are mortal." with the corresponding formula

- a. ∃x Person(x) ⇒ Mortal(x)
- b. ∀x Person(x) ⇒ Mortal(x) ✔
- c. None of the mentioned
- d. ∀x Person(x) ∧ Mortal(x)
- e. ∃x Person(x) ∧ Mortal(x)

Your answer is correct.

The correct answer is:
∀x Person(x) ⇒ Mortal(x)

Question **6**

Incorrect

Mark 0.00 out of 1.50

1 Minute: Match the sentence "For every food, there is a person who eats that food." with the corresponding formula

- a. ∀x ∀y Food(x) ∧ Person(y) ∧ Eats(y, x)
- b. None of the mentioned
- c. ∀x ∃y Food(x) ∧ Person(y) ∧ Eats(y, x) ✖
- d. ∀x ∃y Food(x) ⇒ [Person(y) ∧ Eats(y, x)]
- e. ∀x ∃y [Food(x) ∧ Person(y)] ⇒ Eats(y, x)

Your answer is incorrect.

The correct answer is:
∀x ∃y Food(x) ⇒ [Person(y) ∧ Eats(y, x)]

◄ Quiz2Loca_Adversarial_ISearchApril3

Jump to...

MidtermExamPart2:Local_Search_CSPGenetic ►

Data retention summary

Started on	Tuesday, 20 April 2021, 10:09 AM
State	Finished
Completed on	Tuesday, 20 April 2021, 10:34 AM
Time taken	25 mins 5 secs
Grade	**12.30** out of 13.50 (**91**%)

Question **1**

Correct

Mark 1.50 out of 1.50

1 Minute: The least-constraining-value heuristic prefers the value that rules out the fewest choices for the neighboring variables in the constraint graph.

Select one:

- True ✔
- False

The correct answer is 'True'.

Question **2**

Correct

Mark 1.50 out of 1.50

1 Minute:A complete assignment is one that does not violate any constraints.

Select one:

- True
- False ✔

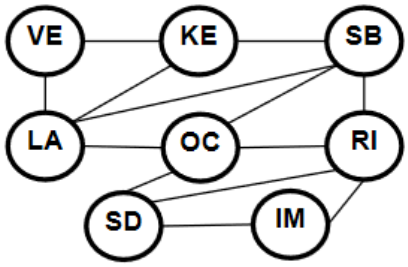
The correct answer is 'False'.

Question 3

Partially correct

Mark 4.80 out of 6.00

10 Minutes: You are a map-coloring robot assigned to color this map with the usual constraints on adjacent coloration (The colors shown on the map are irrelevant).



IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

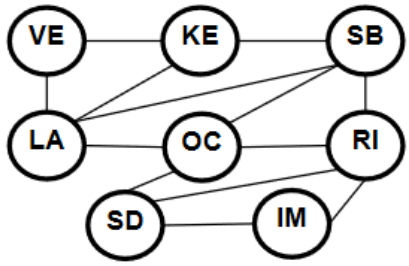
Adjacent regions must be assigned different colors from the set (R=Red, G=Green, B=Blue). The constraint graph is shown.

Please answer the following questions based on CSP

DEGREE (or Most Constraining Variable -MCV-) HEURISTIC . Consider the assignment below. RI has been assigned B and constraint propagation has been done, as shown. Ignoring the MRV heuristic, list all unassigned variables (in any order) that might be selected now by the Degree Heuristic (DH)Consider the assignment below. (It is the same assignment as in problem 3c above.) AL has been assigned B and constraint propagation has been done, as shown. Ignoring the MRV heuristic, list all unassigned variables (in any order) that might be selected now by the MCV Heuristic

IM	KE	LA	OC	RI	SB	SD	VE
R G	R G B	R G B	R G	B	R G	R G	R G B

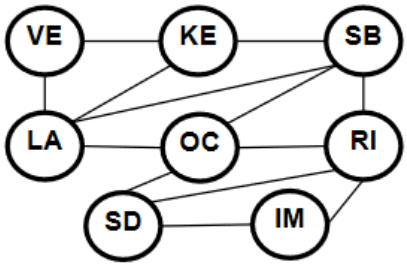
IM,OC,SB,



IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

RC CONSISTENCY.LA has been assigned B and OC has been assigned R, as shown; but no constraint propagation has been done. Cross out (remove) all values that would be eliminated by Arc Consistency. The result is list of **Territory:Remaining Colors:**

IM	KE	LA	OC	RI	SB	SD	VE
R G B	R G B	B	R	R G B	R G B	R G B	R G B

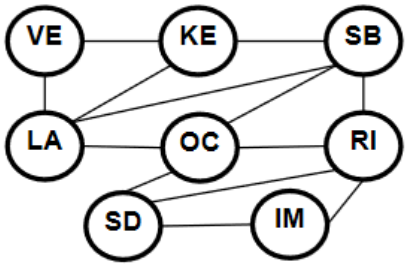


IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

IM:R | KE:R ✔

MIN-CONFLICTS HEURISTIC (choose a value that results in a *minimum* number of *conflicts* with other variables). Consider the complete but inconsistent assignment below. SD has been selected to be assigned a new value (its old value was replaced by "?"). What new value would be chosen below for SD by the Min-Conflicts Heuristic?

IM	KE	LA	OC	RI	SB	SD	VE
R	R	B	R	B	G	?	R

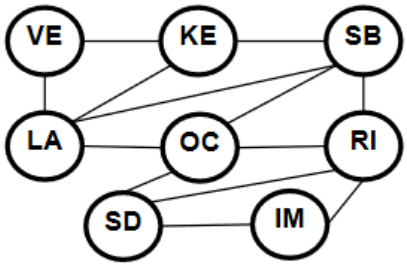


IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

G ✔

FORWARD CHECKING. LA has been assigned value B, as shown. Cross out (remove) all values that would be eliminated by **Forward Checking**. The result is list of **Territory:Remaining Colors, so KE:RG means that KE can be colored in R or in G:**

IM	KE	LA	OC	RI	SB	SD	VE
R G B	R G B	B	R G B	R G B	R G B	R G B	R G B

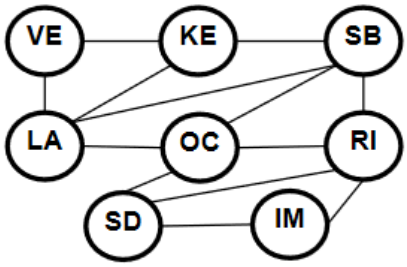


IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

IM:RGB | K ✔

MINIMUM-REMAINING-VALUES HEURISTIC. Consider the assignment below. RI has been assigned B and constraint propagation has been done, as shown. List all unassigned variables (in alphabetic order) that might be selected now by the Minimum-Remaining-Values (MRV) Heuristic:

IM	KE	LA	OC	RI	SB	SD	VE
R G	R G B	R G B	R G	B	R G	R G	R G B



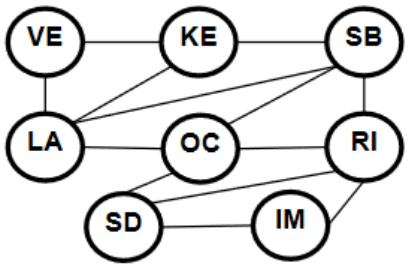
IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

IM,OC,SB,

Your answer is partially correct.

You have correctly selected 4.
The correct answer is:
DEGREE (or Most Constraining Variable -MCV-) HEURISTIC . Consider the assignment below. RI has been assigned B and constraint propagation has been done, as shown. Ignoring the MRV heuristic, list all unassigned variables (in any order) that might be selected now by the Degree Heuristic (DH)Consider the assignment below. (It is the same assignment as in problem 3c above.) AL has been assigned B and constraint propagation has been done, as shown. Ignoring the MRV heuristic, list all unassigned variables (in any order) that might be selected now by the MCV Heuristic

IM	KE	LA	OC	RI	SB	SD	VE
R G	R G B	R G B	R G	B	R G	R G	R G B

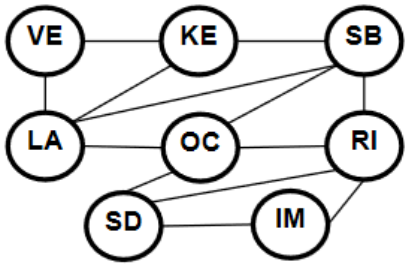


IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

→ LA,

RC CONSISTENCY.LA has been assigned B and OC has been assigned R, as shown; but no constraint propagation has been done. Cross out (remove) all values that would be eliminated by Arc Consistency. The result is list of **Territory:Remaining Colors:**

IM	KE	LA	OC	RI	SB	SD	VE
R G B	R G B	B	R	R G B	R G B	R G B	R G B



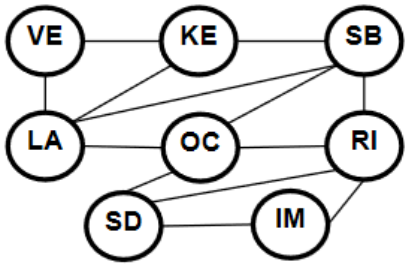
IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

→

IM:R | KE:R | LA:B | OC:R | RI:B | SB:G | SD:G | VE:G,

MIN-CONFLICTS HEURISTIC (choose a value that results in a *minimum* number of *conflicts* with other variables). Consider the complete but inconsistent assignment below. SD has been selected to be assigned a new value (its old value was replaced by "?"). What new value would be chosen below for SD by the Min-Conflicts Heuristic?

IM	KE	LA	OC	RI	SB	SD	VE
R	R	B	R	B	G	?	R

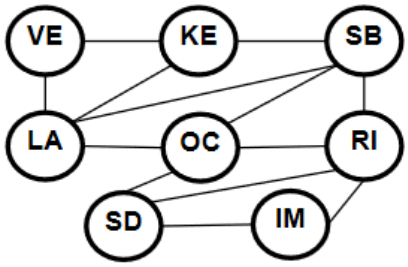


IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

→ G,

FORWARD CHECKING. LA has been assigned value B, as shown. Cross out (remove) all values that would be eliminated by **Forward Checking**. The result is list of **Territory:Remaining Colors, so KE:RG means that KE can be colored in R or in G:**

IM	KE	LA	OC	RI	SB	SD	VE
R G B	R G B	B	R G B	R G B	R G B	R G B	R G B



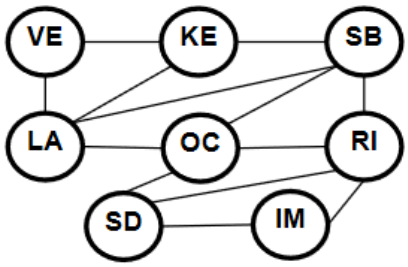
IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

→

IM:RGB | KE:RG | LA:B | OC:RG | RI:RGB | SB:RG | SD:RGB | VE:RG,

MINIMUM-REMAINING-VALUES HEURISTIC. Consider the assignment below. RI has been assigned B and constraint propagation has been done, as shown. List all unassigned variables (in alphabetic order) that might be selected now by the Minimum-Remaining-Values (MRV) Heuristic:

IM	KE	LA	OC	RI	SB	SD	VE
R G	R G B	R G B	R G	B	R G	R G	R G B



IM = Imperial
KE = Kern
LA = Los Angeles
OC = Orange
RI = Riverside
SB = San Bernardino
SD = San Diego
VE = Ventura

→

IM,OC,SB,SD

Question **4**

Correct

Mark 1.50 out of 1.50

1 Minute: Elements of new generation in Genetic Algorithm are created using?

- [x] a. Random mutation ✔
- [ ] b. Fitness function & Crossover techniques
- [ ] c. None of the mentioned.
- [x] d. Crossover techniques ✔
- [ ] e. Individuals among the population & Random mutation
- [ ] f. Random mutation & Fitness function

Your answer is correct.

The correct answers are:
Crossover techniques,

Random mutation

Question **5**

Correct

Mark 1.50 out of 1.50

1 Minute: Using Crossover in genetic Algorithms, the number of iterations used to reach the optimal solution is influenced (depends on) by the selection criteria for the participating parents: the higher the value for the participating parents the faster we reach the optimum (give enough resources).

Select one:

- (•) True ✔
- ( ) False

The correct answer is 'True'.

Question 6

Correct

Mark 1.50 out of 1.50

1 Minute: A constraint satisfaction problem (CSP) consists of a set of variables, a set of domains (one domain for each variable), and a set of constraints that specify allowable combinations of values.

Select one:

- True ✔
- False

The correct answer is 'True'.

◄ MidtermExam_Part1_Logic

Jump to...

MidtermExam_Part3_Global_Search_IncludingAdversarial_MinMax ►

Data retention summary

Started on	Tuesday, 20 April 2021, 10:34 AM
State	Finished
Completed on	Tuesday, 20 April 2021, 11:02 AM
Time taken	27 mins 36 secs
Grade	**16.00** out of 18.00 (**89**%)

Question **1**

Correct

Mark 1.50 out of 1.50

1 Minute: Which search implements stack operation for searching the states?

a. Breadth-first search

b. Bidirectional search

c. Depth-first search ✔

d. None of the mentioned

e. All of the mentioned

Your answer is correct.

The correct answer is:
Depth-first search

Question **2**

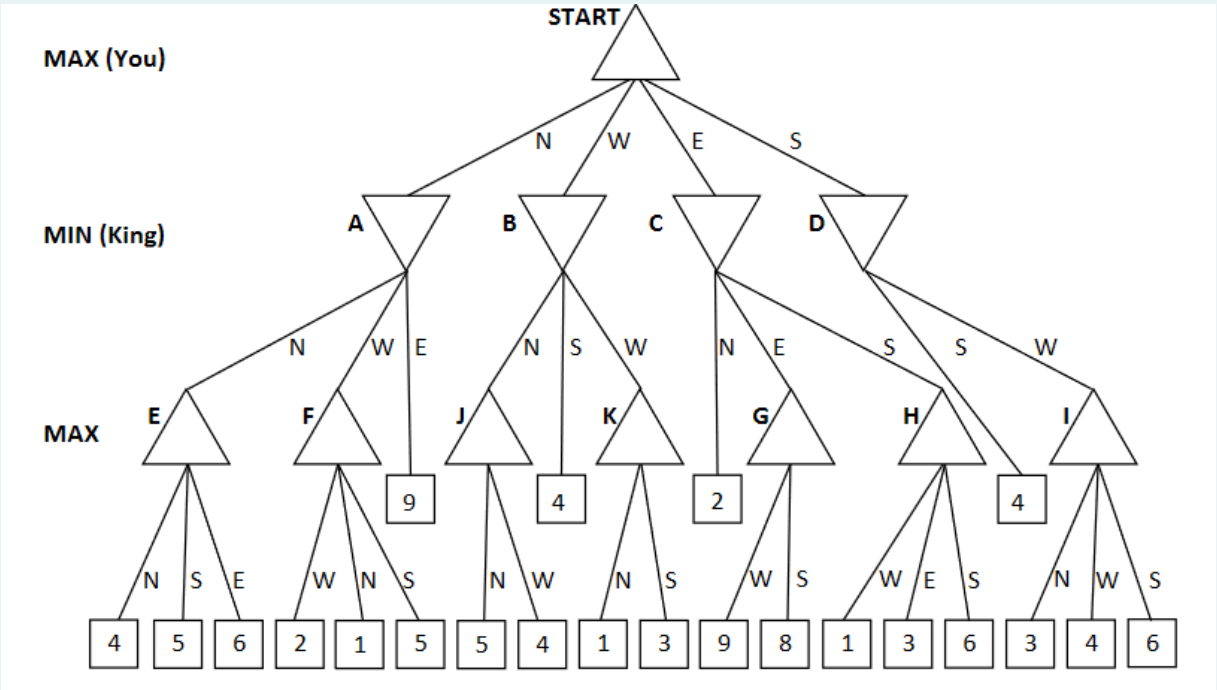
Partially correct

Mark 4.50 out of 5.00

6 Minutes: In the following graph: you are MAX and king is MIN. Nodes are named by letters of the alphabet (A,B,...).

Edges with directions (N,E,W,S) and leaf nodes are referenced by the parent node and edge: so the rightomst lef is I-S and the leftmost is E-N and the leaf A-E has the value 9.

We'll perform Minmax search with and without pruning (alpha,Beta). Please answer the following questions.



After full evaluation with no pruning: D=	4 ✔
After evaluation with pruning: B-S is pruned	False ✖
After evaluation with pruning: C-S is pruned	True ✔
After evaluation with pruning: D-S is pruned	False ✔
After full evaluation with no pruning: A=	5 ✔
After full evaluation with no pruning: Start=	5 ✔
After full evaluation with no pruning: B=	3 ✔
After full evaluation with no pruning: K=	3 ✔
After evaluation with pruning: G-W is pruned	True ✔
After full evaluation with no pruning: I=	6 ✔

Your answer is partially correct.

You have correctly selected 9.
The correct answer is:
After full evaluation with no pruning: D= → 4,

After evaluation with pruning: B-S is pruned → True,

After evaluation with pruning: C-S is pruned → True,

After evaluation with pruning: D-S is pruned → False,

After full evaluation with no pruning: A= → 5,

After full evaluation with no pruning: Start= → 5,

After full evaluation with no pruning: B= → 3,

After full evaluation with no pruning: K= → 3,

After evaluation with pruning: G-W is pruned → True,

After full evaluation with no pruning: I= → 6

Question **3**

Correct

Mark 1.25 out of 1.25

1 Minute: If h1 and h2 are both admissible then h3= (h1+ 1) is also admissible

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **4**

Correct

Mark 1.50 out of 1.50

1 Minute: Which search is implemented with an empty fringe at start and last-in-first-out queue for selection from Fringe?

- a. Breadth-first search
- b. None of the mentioned
- c. All of the mentioned
- d. Depth-first search ✔
- e. Bidirectional search

Your answer is correct.

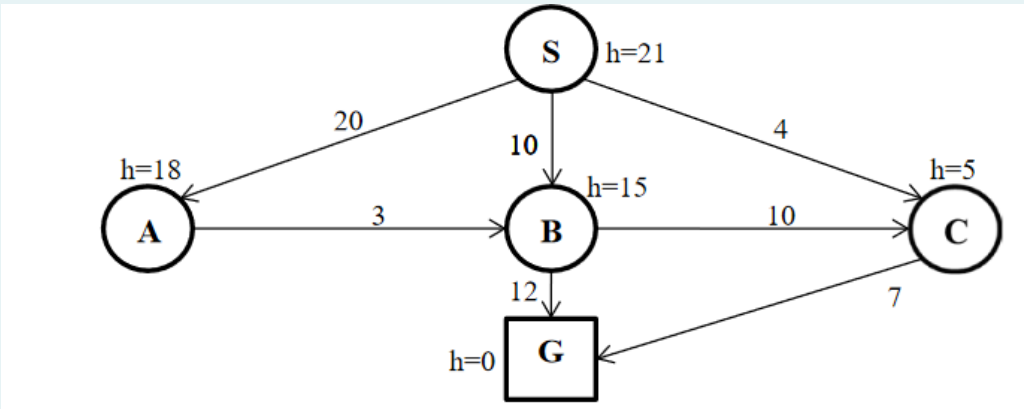
The correct answer is:
Depth-first search

Question **5**

Partially correct

Mark 6.00 out of 7.50

7 Minutes: Given the following graph, with start node S, Goal Node G and arc label is cost and h is the heuristic. Answer the questions below for each type of search. Left to right is the default and needs to be followed when necessary. You are asked to find the nodes expanded, path to goal and cost of path to goal for 6 search algorithms studied in class (18 answers).



A* SEARCH:Path to goal found:	S, C, G	✔
DEPTH-FIRST SEARCH: Path to goal found: [order by listing]	S A B G	✔
ITERATIVE DEEPENING SEARCH:Order of expansion	S A B G	✖
UNIFORM COST SEARCH: Order of expansion	S--> B--> G	✖
This part of the question was deleted after the attempt was started.	18	✖
This part of the question was deleted after the attempt was started.	S, C, G	✖
UNIFORM COST SEARCH:Path to goal found: [order using arrows]	S, C, G	✖
This part of the question was deleted after the attempt was started.	40	✖
BREADTH-FIRST SEARCH:Path to goal found cost:	S B G	✖
ITERATIVE DEEPENING SEARCH:Path to goal found: [order using arrows]	S--> B--> G	✔
This part of the question was deleted after the attempt was started.	S -->A--> B--> G	✖
UNIFORM COST SEARCH:Path to goal found cost: in words	S, C, G	✖
BREADTH-FIRST SEARCH: Order of expansion [order using arrows]	11	✖
BREADTH-FIRST SEARCH:Path to goal found: [order using listing]	S B G	✔
This part of the question was deleted after the attempt was started.	S C B G	✖

Your answer is partially correct.

You have correctly selected 4.
The correct answer is:
A* SEARCH:Path to goal found: → S, C, G,

DEPTH-FIRST SEARCH: Path to goal found: [order by listing] → S A B G,

UNIFORM COST SEARCH: Order of expansion → S C B G,

UNIFORM COST SEARCH:Path to goal found: [order using arrows] → S--> C--> G,

ITERATIVE DEEPENING SEARCH:Path to goal found: [order using arrows] → S--> B--> G,

BREADTH-FIRST SEARCH: Order of expansion [order using arrows] → S -->A--> B--> G,

BREADTH-FIRST SEARCH:Path to goal found: [order using listing] → S B G

Comment:
BFS order of expansion is correct.

Question 6

Correct

Mark 1.25 out of 1.25

1 Minute: If h1 and h2 are both admissible then h3= 2* h2 is also admissible

Select one:

- True
- False ✔

The correct answer is 'False'.

◄ MidtermExamPart2:Local_Search_CSPGenetic

Jump to...

Part1OfFinalExam ►