	Started on	Sunday, 4 June 2023, 10:50 PM	
	State	Finished	
Con	npleted on	Sunday, 4 June 2023, 10:58 PM	
Т	Time taken	7 mins 22 secs	
	Grade	<b>7.25</b> out of 10.00 ( <b>72.5</b> %)	
uestion 1			
orrect			
1ark 1.00 o	ut of 1.00		
Which o	f the follow	ing statements is true about the knapsack problem?	
Select o	ne:		
○ a.	It is an optimization problem where the goal is to minimize the weight of items that can be put into a knapsack of a given capacity		
O b.	It is a decision problem where the goal is to determine the maximum weight that can be put into a knapsack of a given capacity		
C.	It is an optimization problem where the goal is to maximize the weight of items that can be put into a knapsack of a given capacity		
( d.	It is a decision problem where the goal is to determine if a given set of items can be put into a knapsack of a given capacity		
Your an:	swer is corr	ect.	
	ze the weigh	is: It is an optimization problem where the goal is to at of items that can be put into a knapsack of a given	
Question 2 Correct Mark 1.00 o	ut of 1.00		
Every re	currence ca	n be solved using the Master Theorem	
Select o	ne:		
Select o			

The correct answer is 'False'.

20:09		Quiz 12: Attempt revi
uestion 3	1	
orrect		
1ark 1.00 d	out of 1.00	
The fra	ctional knapsack problem can be solved using which c jues?	of the following
Select	one:	
○ a.	Backtracking	
O b.	Branch and bound	
c.	Greedy algorithm ✔	
○ d.	Dynamic programming	
Your an	nswer is correct.	
The cor	rrect answer is: Greedy algorithm	
uestion 4		
orrect		
1ark 1.00 d	out of 1.00	
Dynami	ic programming does not work if the subproblems:	
Select of	one:	
○ a.	Overlap	
b.	Share resources and thus are not independent 🗸	
O c.	Have to be divided too many times to fit into memory	,
O d.	Cannot be divided in half	

Your answer is correct.

The correct answer is: Share resources and thus are not independent

Question 5	i
Partially co	rrect
Mark 0.50 d	out of 1.00
	of the following statements is/are incorrect regarding dynamic mming?
Select of	one or more:
_ a.	Could employ recursion and memorization
b.	Could not minimize redundant calculations ✔
□ c.	Problems are solved by combining the solutions to independent sub- problems
_ d.	Answers to sub-problems could be stored in a tabular structure
	rrect answers are: Problems are solved by combining the solutions to ndent sub-problems, Could not minimize redundant calculations
Question 6	

Assume we are solving the rod-cutting problem in the book using dynamic programming, and we have a rod of length n that we decide to cut at location

- i. How many subproblems are left after we make this cut
- ii. How many choices do we need to check for each subproblem?

We are trying to find the maximum profit from the rod lengths that we cut.

## Select one:

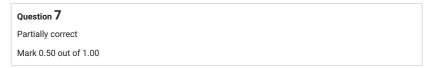
Incorrect

Mark 0.00 out of 1.00

- a. 3 subproblems, n-1 choices to check
- b. 1 subproblem, up to n choices we have to check
- o. No subproblems, we just solve the problem directly

Your answer is incorrect.

The correct answer is: 1 subproblem, up to n choices we have to check



## Solve the knapsack problem for the given parameters.

```
n = 4, c = 6
```

Item (i) 1 2 3 4

w(i) 2 1 5 4

p(i) 9 7 15 14

Which of the items are included in the optimal solution?

#### Select one or more:

- a. 1 

  ✓
- b. 2 ×
- \_ c. 3
- d. 4 

  ✓

### The correct answers are: 1, 4

# Question 8 Partially correct Mark 0.25 out of 1.00

Select the problems with the technique that can best be used to solve them.



Your answer is partially correct.

You have correctly selected 1.

The correct answer is:

Select the problems with the technique that can best be used to solve them.

- 1. Matrix multiplication: [Divide and Conquer]
- 2. Rod cutting: [Dynamic Programming]
- 3. Quicksort: [Divide and Conquer]
- 4. Interval scheduling: [Greedy Strategy]

Question 9	)
Correct	
Mark 1.00	out of 1.00
probler	of the following algorithms can be used to solve the 0/1 knapsack m? (The 0/1 knapsack problem means that the items are either etely or no items are filled in a knapsack.)
Select	one:
○ a.	Greedy algorithm
O b.	Backtracking
O c.	Dynamic programming
d.	Both b and c ✔
Your ar	nswer is correct.
The co	rrect answer is: Both b and c
Question 1	0
Correct	
Mark 1.00	out of 1.00
Daaring	ence equations describing the work done during recursion are only useful
	de and conquer algorithm analysis
Select	one:
○ True	9

The correct answer is 'False'.