MONASH University

FIT3158 Business decision modelling - S2 2022



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|---|---|
| **Started on** | Friday, 26 August 2022, 8:11 PM |
| **State** | Finished |
| **Completed on** | Friday, 26 August 2022, 8:23 PM |
| **Time taken** | 11 mins 26 secs |
| **Grade** | **1.00** out of 1.00 (**100**%) |

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Question **1**

Correct

Mark 0.10 out of 0.10

Maximal flow problems are converted to transshipment problems by

a. adding extra supply nodes

b. requiring integer solutions

c. connecting the supply and demand nodes with a return arc ✔

d. adding supply limits on the supply nodes

The correct answer is: connecting the supply and demand nodes with a return arc

Question **2**

Correct

Mark 0.10 out of 0.10

The number of constraints in network flow problems is determined by the number of

a. supplies.

b. demands.

c. nodes. ✔

d. arcs.

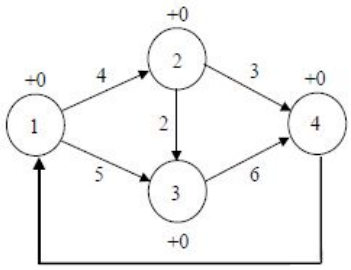
The correct answer is: nodes.

Question **3**

Correct

Mark 0.20 out of 0.20

What is the objective function in the following maximal flow problem?




a. MAX $X_{14}$

b. MIN $X_{41}$

c. MAX $X_{41}$ ✔

d. MAX $X_{12} + X_{13} + X_{23} + X_{24} + X_{34}$

The correct answer is: MAX $X_{41}$

Question **4**

Correct

Mark 0.10 out of 0.10

The arcs in a network indicate all of the following except?

a. constraints ✔

b. routes

c. paths

d. connections

The correct answer is: constraints

Question **5**

Correct

Mark 0.10 out of 0.10

How many constraints are there in a transportation problem which has 6 supply points and 5 demand points? (ignore the non-negativity/integer constraints)

a. 5

b. 11 ✔

c. 30

d. 6

The correct answer is: 11

Question **6**

Question 6

Correct

Mark 0.10 out of 0.10

How could a network be modified if demand exceeds available supply?

a. remove the extra demand arcs

b. add a dummy supply ✔

c. add a dummy demand

d. add extra supply arcs

The correct answer is: add a dummy supply

Question 7

Correct

Mark 0.10 out of 0.10

A factory which ships items through the network would be represented by which type of node?

a. random

b. decision

c. supply ✔

d. demand

The correct answer is: supply

Question 8

Correct

Mark 0.10 out of 0.10

A maximal flow problem differs from other network models in which way?

a. arcs have unlimited capacity

b. multiple supply nodes are used

c. arcs have limited capacity ✔

d. arcs are always two directional

The correct answer is: arcs have limited capacity

Question 9

Correct

Mark 0.10 out of 0.10

The right hand side value (constraint) for the ending node in a shortest path problem has a value of

a. 1

b. -1

c. 0

d. 2

The correct answer is: 1

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