

姓名 Name : _____ 學號 Student ID # : _____
 Quiz 2 MATH 207: Discrete Mathematics II

Let G be the complete graph on vertices $\{0, \dots, 5\}$ such that the weights of its edges are recorded in the following table.

	0	1	2	3	4	5
0		5	19	3	9	4
1			16	15	16	13
2				7	4	16
3					1	13
4						14
5						

Recall that the weight of a spanning tree is the sum of its edge weights. Find a spanning tree of G with the minimum weight.

Check code = (weight of your spanning tree) mod 10

Solution.

Apply one of the minimum spanning tree algorithms, e.g., Kruskal's algorithm or Prim's algorithm. The tree using the following edges

01, 24, 03, 34, 05

is a minimum spanning tree, whose weight is 17.

Check code = (weight of your spanning tree) mod 10 = 7.



Indicating your answer by **underlining it** or **circling it**.
 Compute the **check code** and fill it into the **box on the right**.

check code
7

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Let G be the complete graph on vertices $\{0, \dots, 5\}$ such that the weights of its edges are recorded in the following table.

	0	1	2	3	4	5
0		2	3	3	12	6
1			10	9	20	7
2				20	2	19
3					6	14
4						13
5						

Recall that the weight of a spanning tree is the sum of its edge weights. Find a spanning tree of G with the minimum weight.

Check code = (weight of your spanning tree) mod 10

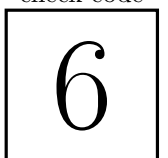
Solution.

Apply one of the minimum spanning tree algorithms, e.g., Kruskal's algorithm or Prim's algorithm. The tree using the following edges

01, 02, 03, 24, 05

is a minimum spanning tree, whose weight is 16.

Check code = (weight of your spanning tree) mod 10 = 6.



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Let G be the complete graph on vertices $\{0, \dots, 5\}$ such that the weights of its edges are recorded in the following table.

	0	1	2	3	4	5
0		8	19	18	5	12
1			20	16	19	3
2				20	1	16
3					9	18
4						8
5						

Recall that the weight of a spanning tree is the sum of its edge weights. Find a spanning tree of G with the minimum weight.

Check code = (weight of your spanning tree) mod 10

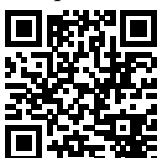
Solution.

Apply one of the minimum spanning tree algorithms, e.g., Kruskal's algorithm or Prim's algorithm. The tree using the following edges

15, 24, 34, 04, 45

is a minimum spanning tree, whose weight is 26.

Check code = (weight of your spanning tree) mod 10 = 6.



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Let G be the complete graph on vertices $\{0, \dots, 5\}$ such that the weights of its edges are recorded in the following table.

	0	1	2	3	4	5
0		8	10	4	13	16
1			5	3	3	1
2				13	18	10
3					2	8
4						17
5						

Recall that the weight of a spanning tree is the sum of its edge weights. Find a spanning tree of G with the minimum weight.

Check code = (weight of your spanning tree) mod 10

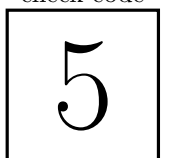
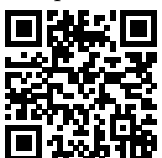
Solution.

Apply one of the minimum spanning tree algorithms, e.g., Kruskal's algorithm or Prim's algorithm. The tree using the following edges

13, 12, 03, 34, 15

is a minimum spanning tree, whose weight is 15.

Check code = (weight of your spanning tree) mod 10 = 5.



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Let G be the complete graph on vertices $\{0, \dots, 5\}$ such that the weights of its edges are recorded in the following table.

	0	1	2	3	4	5
0		20	9	12	17	1
1			15	8	2	6
2				4	12	16
3					8	13
4						18
5						

Recall that the weight of a spanning tree is the sum of its edge weights. Find a spanning tree of G with the minimum weight.

Check code = (weight of your spanning tree) mod 10

Solution.

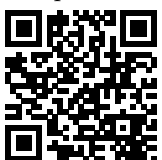
Apply one of the minimum spanning tree algorithms, e.g., Kruskal's algorithm or Prim's algorithm. The tree using the following edges

15, 23, 13, 14, 05

is a minimum spanning tree, whose weight is 21.

Check code = (weight of your spanning tree) mod 10 = 1.

MinSpanTree 5



Indicating your answer by **underlining it** or **circling it**.
 Compute the **check code** and fill it into the **box on the right**.

check code
1

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Let G be the complete graph on vertices $\{0, \dots, 5\}$ such that the weights of its edges are recorded in the following table.

	0	1	2	3	4	5
0		19	3	16	9	2
1			1	5	19	16
2				12	11	1
3					9	16
4						7
5						

Recall that the weight of a spanning tree is the sum of its edge weights. Find a spanning tree of G with the minimum weight.

Check code = (weight of your spanning tree) mod 10

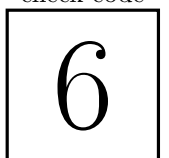
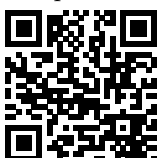
Solution.

Apply one of the minimum spanning tree algorithms, e.g., Kruskal's algorithm or Prim's algorithm. The tree using the following edges

12, 25, 13, 45, 05

is a minimum spanning tree, whose weight is 16.

Check code = (weight of your spanning tree) mod 10 = 6.



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Let G be the complete graph on vertices $\{0, \dots, 5\}$ such that the weights of its edges are recorded in the following table.

	0	1	2	3	4	5
0		11	5	13	2	3
1			18	4	12	19
2				2	17	7
3					2	3
4						14
5						

Recall that the weight of a spanning tree is the sum of its edge weights. Find a spanning tree of G with the minimum weight.

Check code = (weight of your spanning tree) mod 10

Solution.

Apply one of the minimum spanning tree algorithms, e.g., Kruskal's algorithm or Prim's algorithm. The tree using the following edges

13, 23, 34, 04, 05

is a minimum spanning tree, whose weight is 13.

Check code = (weight of your spanning tree) mod 10 = 3.



Indicating your answer by **underlining it** or **circling it**.
 Compute the **check code** and fill it into the **box on the right**.

check code
3

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Let G be the complete graph on vertices $\{0, \dots, 5\}$ such that the weights of its edges are recorded in the following table.

	0	1	2	3	4	5
0		8	12	13	5	7
1			2	3	5	8
2				17	7	13
3					1	15
4						16
5						

Recall that the weight of a spanning tree is the sum of its edge weights. Find a spanning tree of G with the minimum weight.

Check code = (weight of your spanning tree) mod 10

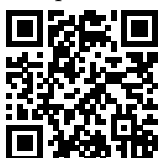
Solution.

Apply one of the minimum spanning tree algorithms, e.g., Kruskal's algorithm or Prim's algorithm. The tree using the following edges

13, 12, 34, 04, 05

is a minimum spanning tree, whose weight is 18.

Check code = (weight of your spanning tree) mod 10 = 8.



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Let G be the complete graph on vertices $\{0, \dots, 5\}$ such that the weights of its edges are recorded in the following table.

	0	1	2	3	4	5
0		15	20	12	9	5
1			6	1	11	17
2				15	20	3
3					11	18
4						20
5						

Recall that the weight of a spanning tree is the sum of its edge weights. Find a spanning tree of G with the minimum weight.

Check code = (weight of your spanning tree) mod 10

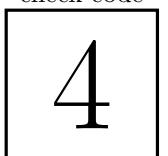
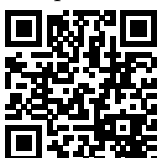
Solution.

Apply one of the minimum spanning tree algorithms, e.g., Kruskal's algorithm or Prim's algorithm. The tree using the following edges

12, 25, 13, 04, 05

is a minimum spanning tree, whose weight is 24.

Check code = (weight of your spanning tree) mod 10 = 4.



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Let G be the complete graph on vertices $\{0, \dots, 5\}$ such that the weights of its edges are recorded in the following table.

	0	1	2	3	4	5
0		19	2	14	16	19
1			1	7	15	16
2				9	6	2
3					17	16
4						11
5						

Recall that the weight of a spanning tree is the sum of its edge weights. Find a spanning tree of G with the minimum weight.

Check code = (weight of your spanning tree) mod 10

Solution.

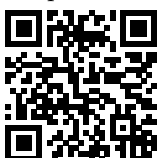
Apply one of the minimum spanning tree algorithms, e.g., Kruskal's algorithm or Prim's algorithm. The tree using the following edges

12, 02, 13, 24, 25

is a minimum spanning tree, whose weight is 18.

Check code = (weight of your spanning tree) mod 10 = 8.

MinSpanTree 10



Indicating your answer by **underlining it** or **circling it**.
 Compute the **check code** and fill it into the **box on the right**.

check code

