+1/1/60+

IIT Guwahati
Department of CSE
End Semester Examination

CS202/CS533 Discrete Mathematics — February 6, 2024

Time: 09:00am-12:00pm — **Max Marks:** 100

Name ..... Sign .....

Roll ..... Invigilator .....

Instructions

- This question paper has **x** pages and **y** questions.
- All the answers are to be bubbled on the Answer Sheet.
- No questions about the paper will be entertained during the exam.
- You may use the supplementary sheets for the rough work. Answers written / continued on the supplementary sheets will **not** be evaluated. Do not attach your rough work/ supplementary sheets.
- It is suggested that you use a black ball point pen.

Multiple Choice Questions

Question 1 How many different states were members of the European Union in Jan. 2009?

A 15 B 21 C 25 ■ 27 E 31

Question 2 How are you?

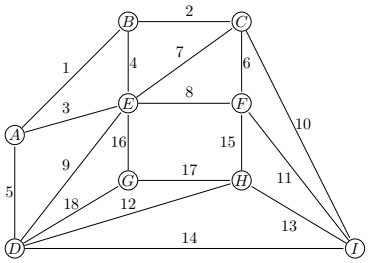
A Claude Monet
■ Rene Coty
C Alain Prost
D Marcel Proust

Question 3 ♣ Among the following cities, which ones are French prefectures?

■ Avignon
B Sainte-Menehould
■ Poitiers
D *None of these answers are correct.*

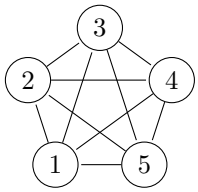
Other Questions

Question 4 Consider the graph G given below. The numbers on each edge denotes the *weight* of the corresponding edge.The weight of an edge e is denoted by $w(e)$. The *weight of a graph* is defined to be $\sum_{e \in E} w(e)$. Let T be a least weighted connected subgraph of G containing 9 vertices. Which of the following statements are true?

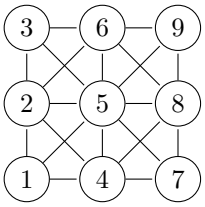


- [redacted] T doesn't contain the edge (G, D)
- [redacted] T does contain the edge (A, B)
- [C] T is not bipartite.
- [redacted] T contains exactly 8 edges
- [E] *None of these answers are correct.*

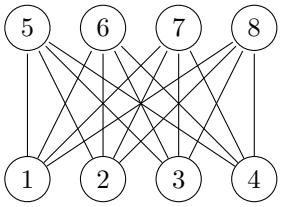
Question 5 Which of the graphs given below are planar?



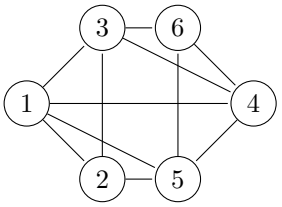
(G_1)



(G_2)



(G_3)



(G_4)

- [A] G_3
- [B] G_1
- [redacted] G_4
- [redacted] G_2
- [E] *None of these answers are correct.*

Question 6 Let $G = (V, E)$ be a graph such that $|V| = 7$ and $|E| = 16$. Which of the following statements are true?

- [redacted] G connected.
- [B] G is planar.
- [C] G is Eulerian
- [D] G has a perfect matching.
- [E] *None of these answers are correct.*

+1/3/58+

Answer Sheet

Get the invigilator's help to know your UID. Invigilator's Sign : .....

Student Information

Please bubble your UID.

Name .....

UID.....Roll .....

Email .....

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

Responses

Q 1: A B C ■ E

Q 2: A ■ C D

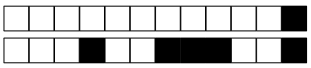
Q 3: ■ B ■ D

Q 4: ■ ■ C ■ E

Q 5: A B ■ ■ E

Q 6: ■ B C D E

Please do not write anything on the other side of the answer sheet.



+2/1/56+

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Multiple Choice Questions

Question 1 How are you?

A Marcel Proust
B Claude Monet
C Alain Prost
■ Rene Coty

Question 2 ♣ Among the following cities, which ones are French prefectures?

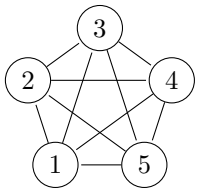
A Sainte-Menehould
■ Avignon
■ Poitiers
D *None of these answers are correct.*

Question 3 How many different states were members of the European Union in Jan. 2009?

A 15 B 21 C 25 ■ 27 E 31

Other Questions

Question 4 Which of the graphs given below are planar?



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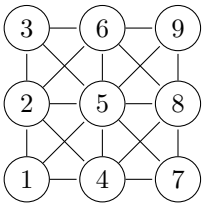
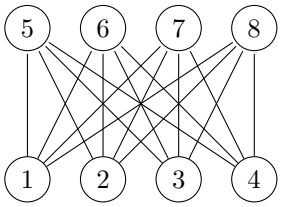


(G_2)



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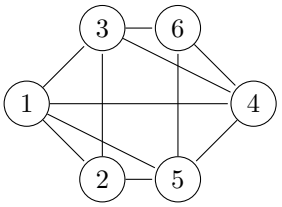

(G_4)

A G_1
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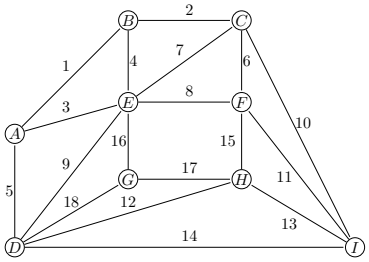
E *None of these answers are correct.*

Question 5 Consider the graph G given below. The numbers on each edge denotes the *weight* of the corresponding edge.The weight of an edge e is denoted by $w(e)$. The *weight of a graph* is defined to be $\sum_{e \in E} w(e)$. Let T be a least weighted connected subgraph of G containing 9 vertices. Which of the following statements are true?



■ T doesn't contain the edge (G, D)
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Question 6 Let $G = (V, E)$ be a graph such that $|V| = 7$ and $|E| = 16$. Which of the following statements are true?

■ G connected.
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+2/3/54+

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Responses

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Q 2: A ■ ■ D

Q 3: A B C ■ E

Q 4: A B ■ ■ E

Q 5: ■ ■ ■ D E

Q 6: ■ B C D E

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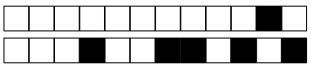

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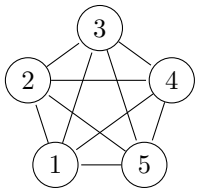

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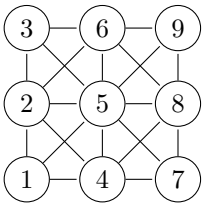

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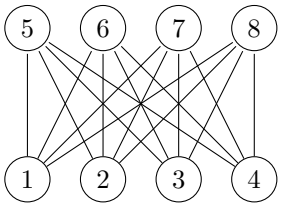

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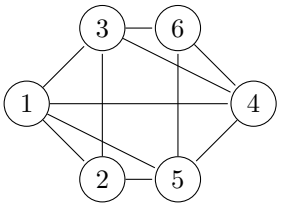

(G_4)

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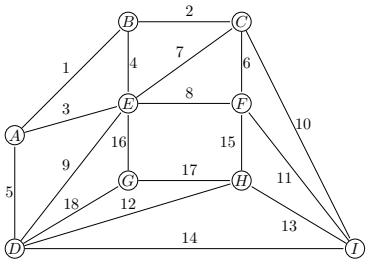

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