



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 ☐ D 27 ☐ E 31

Question 2 How are you?

- ☐ A Claude Monet
☐ B Rene Coty
☐ C Alain Prost
☐ D Marcel Proust

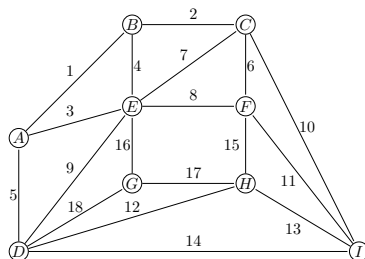
Question 3 ♣ Among the following cities, which ones are French prefectures?

- ☐ A Avignon
☐ B Sainte-Menehould
☐ C Poitiers
☐ D *None of these answers are correct.*

OTHER QUESTIONS

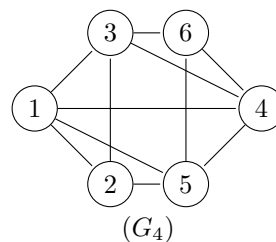
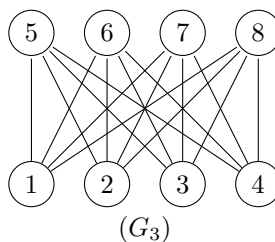
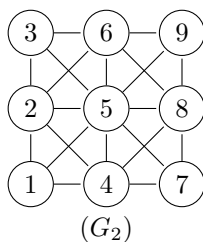
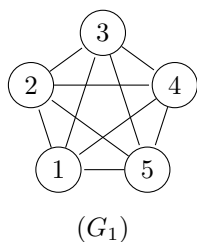


Question 4 Consider the graph G given below. The numbers on each edge denotes the *weight* of the corresponding edge. The weight of an edge e is denoted by $w(e)$. The *weight of a graph* is defined to be $\sum_{e \in E} w(e)$. Let T be a least weighted connected subgraph of G containing 9 vertices.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



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

Question 5 Which of the graphs given below are planar?



- ☐ A G_3 ☐ C G_4 ☐ E *None of these answers are correct.*
☐ B G_1 ☐ D G_2

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

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



ANSWER SHEET

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

STUDENT INFORMATION

Please bubble your UID.

Name.....

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RESPONSES

Q 1:

A	B	C	D	E
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Q 4:

A	B	C	D	E
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Q 2:

A	B	C	D
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A	B	C	D	E
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Q 3:

A	B	C	D
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- ☐ A Marcel Proust
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☐ C Alain Prost
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Question 2 ♣ Among the following cities, which ones are French prefectures?

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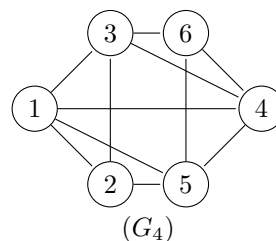
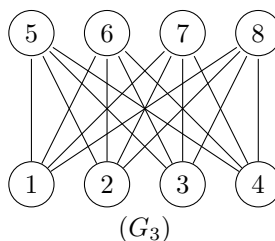
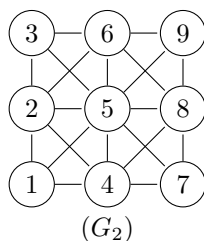
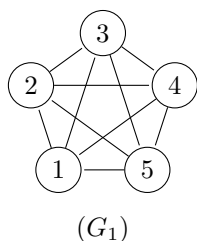
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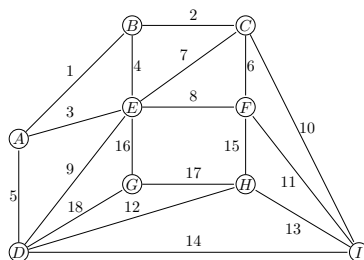


- ☐ A G_1
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- ☐ C G_4
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Question 5 Consider the graph G given below. The numbers on each edge denotes the *weight* of the corresponding edge. The weight of an edge e is denoted by $w(e)$. The *weight 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?



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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?

- ☐ A G connected.
☐ B G has a perfect matching.
☐ C G is planar.

- ☐ D G is Eulerian
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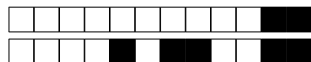
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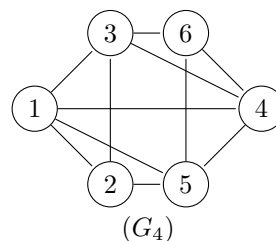
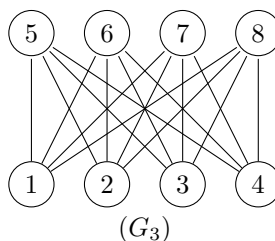
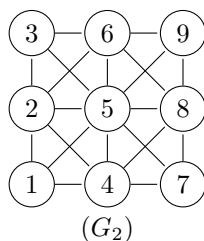
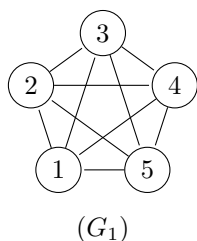
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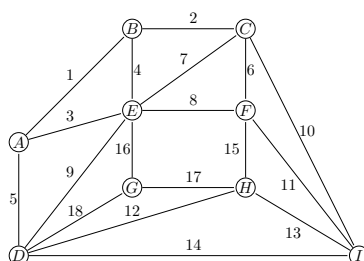
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