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?
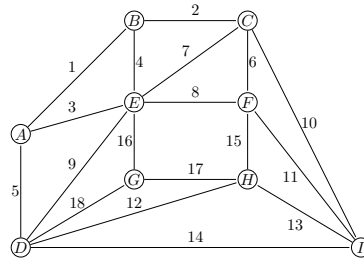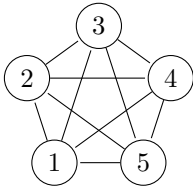

■ T doesn't contain the edge (G, D)

■ T does contain the edge (A, B)

[C] T is not bipartite.

■ 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

■ G_4

■ G_2
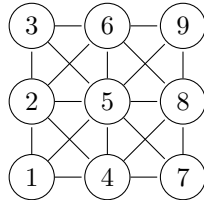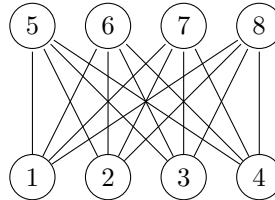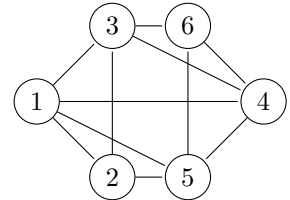
[E] *None of these answers are correct.*

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

■ G connected.

[B] G is planar.

[C] G is Eulerian

[D] G has a perfect matching.

[E] *None of these answers are correct.*

⎡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 4: ■ ■ C ■ E

Q 2: A ■ C D   Q 5: A B ■ ■ E

Q 3: ■ B ■ D   Q 6: ■ B C D E

PLEASE DO NOT WRITE ANYTHING ON THE OTHER SIDE OF THE ANSWER SHEET.

CORRECTED