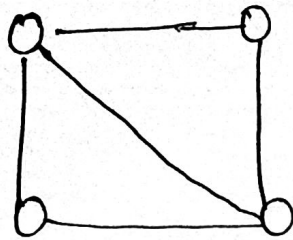
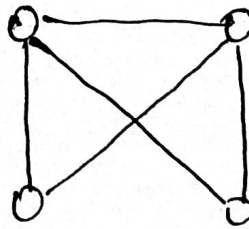
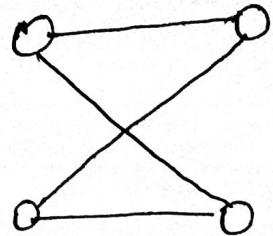


Question 37

Answer A)

 G_1  G_2  G_3

i)

no. of vertices in $G_1 = 4$ no. of vertices in $G_2 = 4$ no. of vertices in $G_3 = 4$

ii)

no. of edges in $G_1 = 5$ no. of edges in $G_2 = 5$ no. of edges in $G_3 = 4$ So G_1 and G_2 can be isomorphic

iii)

Degree sequence of $G_1 = \{2, 2, 3, 3\}$ Degree sequence of $G_2 = \{2, 2, 3, 3\}$ Both G_1 and G_2 have 2 cycles of length 3hence G_1 and G_2 are isomorphic

Answer b) Perfect match matching is a set of edges such that each vertex appears only once.

For perfect matching must have $n/2$ edges

$$n = 6$$

$$\text{no. of ways to first edge} = {}^6C_2 = 15$$

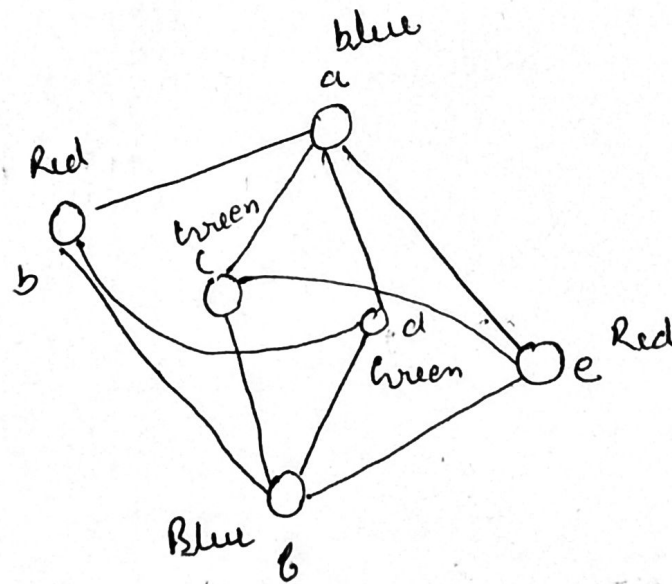
$$\text{no. of ways to choose 2nd edge} = {}^4C_2 = 6$$

$$\text{no. of ways to choose 3rd edge} = {}^2C_2 = 1$$

$$\text{Total ways} = 15 \times 6 \times 1 = 90$$

$$\text{Hence total Number of perfect matching} = \frac{90}{6} = 15$$

Ans : c)



Hence, the chromatic number of this graph is 3