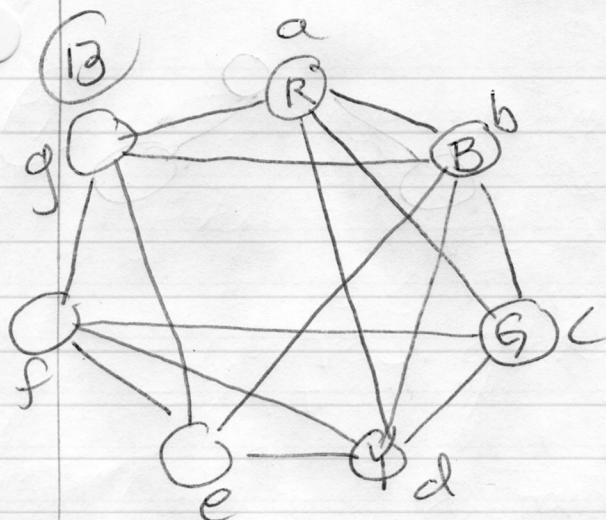


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ex 2



R=red
B=blue
G=green
Y=yellow

a, b, c, d
make
a K_4 ,
so need
4 colors

$\chi = 4$

Then color e with G
f " B
g " Y

(14) (a)

$$M = \begin{matrix} & \begin{matrix} u & v & w & x & y \end{matrix} \\ \begin{matrix} u \\ v \\ w \\ x \\ y \end{matrix} & \begin{bmatrix} 0 & 1 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 & 1 \\ 1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & 0 & 1 \\ 0 & 1 & 1 & 1 & 0 \end{bmatrix} \end{matrix}$$

$$M^3 = \begin{bmatrix} 0 & 4 & 5 & 2 & 1 \\ 4 & 0 & 1 & 2 & 5 \\ 5 & 1 & 2 & 4 & 6 \\ 2 & 2 & 4 & 2 & 4 \\ 1 & 5 & 6 & 4 & 2 \end{bmatrix} \leftarrow y$$

(b) Add elements in y-row and yth column of M^3 :

$$1 + 5 + 6 + 4 + 2 + 4 + 6 + 5 + 1 = 34$$

(c) number of paths of length 3 or less ending at w

(15)

