

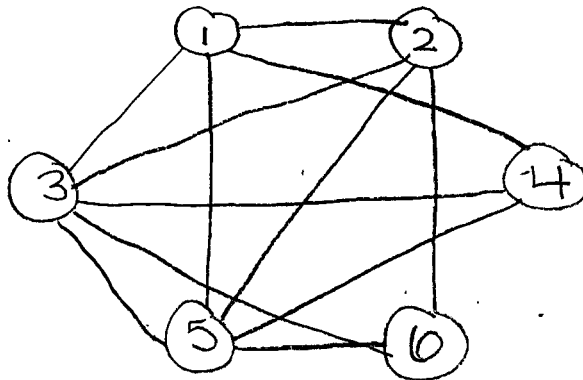
Dr. Z.'s Math 354 REAL Quiz #11

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1. (4 points) (a) Draw the graph whose incidence matrix is

$$\begin{bmatrix} 0 & 1 & 1 & 1 & 1 & 0 \\ 1 & 0 & 1 & 0 & 1 & 1 \\ 1 & 1 & 0 & 1 & 1 & 1 \\ 1 & 0 & 1 & 0 & 1 & 0 \\ 1 & 1 & 1 & 1 & 0 & 1 \\ 0 & 1 & 1 & 0 & 1 & 0 \end{bmatrix}$$



(b) (4 points) Find all cycles of length 3 joining vertex 2 back to vertex 2.

- $2 \rightarrow 1 \rightarrow 5 \rightarrow 2$ $2 \rightarrow 5 \rightarrow 1 \rightarrow 2$
 $2 \rightarrow 1 \rightarrow 3 \rightarrow 2$ $2 \rightarrow 3 \rightarrow 1 \rightarrow 2$
 $2 \rightarrow 5 \rightarrow 6 \rightarrow 2$ $2 \rightarrow 6 \rightarrow 5 \rightarrow 2$
 $2 \rightarrow 3 \rightarrow 5 \rightarrow 2$ $2 \rightarrow 5 \rightarrow 3 \rightarrow 2$
 $2 \rightarrow 3 \rightarrow 6 \rightarrow 2$ $2 \rightarrow 6 \rightarrow 3 \rightarrow 2$