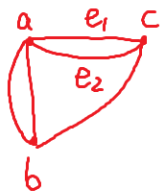
CS1231 Review 20

1. Draw graph H if its incidence matrix is as follows.



$$\begin{array}{c} \\ a \\ b \\ c \end{array} \begin{array}{c} \begin{array}{ccccc} e_1 & e_2 & e_3 & e_4 & e_5 \end{array} \\ \begin{pmatrix} 1 & 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 & 1 \\ 1 & 1 & 0 & 0 & 1 \end{pmatrix} \end{array}$$

2. Let G be a graph and $n \in \mathbb{Z}^*$. A **path of length** n from vertex u to v is $v_0 v_1 v_2 \cdots v_n$ where $v_0 v_1, v_1 v_2, \cdots, v_{n-1} v_n$ edges ($v_0 = u$, $v_n = v$)

3. A **circuit** is a path with at lest one edge and with starting vertex = ending vertex

4. A path or circuit is **simple** if no repeat edges.

5. A graph G is **connected** if there is a path between any 2 distinct vertice

6. A maximal connected subgraph of a graph G is called a connected component.

7. An **Euler circuit** of a graph G is a simple circuit that goes through every vertex and every edge in the graph.

8. A connected graph has an Euler circuit iff every vertex is of even degree.

9. A **Euler path** of a graph G is a simple path not a circuit that goes through every vertex and every edges in the graph.

10. A graph has an Euler path iff every vertex but 2 vertices has even degree.