Quiz 3

MATH 263: Discrete Mathematics 2

Dr. Petrescu

Due: February 15, 2023 **Denny Cao**

Question 1. For which values of n are these graphs bipartite?
a) K_n b) C_n c) W_n d) Q_n

Answer 1.

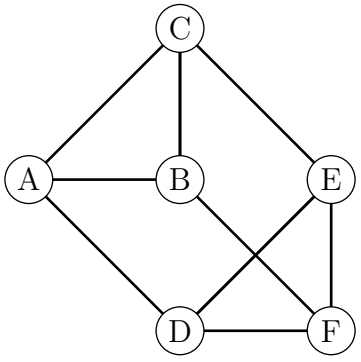
Question 2. A simple graph is called regular if every vertex of this graph has the same degree. A regular graph is called $n-regular$ if every vertex in this graph has degree n. For which values of n are these graphs regular?
a) K_n b) C_n c) W_n d) Q_n

Answer 2.

Question 3. The complementary graph $\overline{G}$ of a simple graph G has the same vertices as G, however, if two vertices are adjacent in $\overline{G}$ if and only if they are not adjacent in G. Describe each of these graphs.
a) $\overline{K}_n$ b) $\overline{C}_n$ c) $\overline{W}_n$ d) $\overline{Q}_n$

Answer 3.

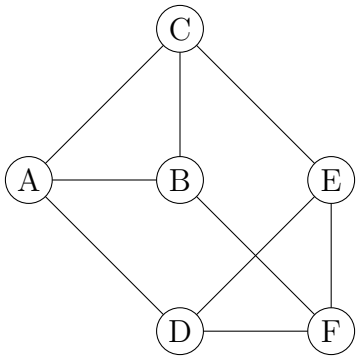
Question 4. Write the adjacency and then incidence matrix for the following graph:



Answer 4. The adjacency matrix is:

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

We name the edges as follows:


C
A
B
E
D
F