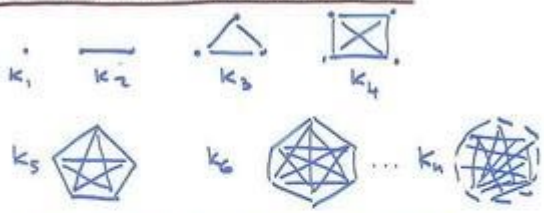
LEC 30 11/10/99

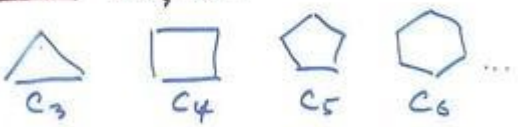
SOME SPECIAL GRAPHS

COMPLETE GRAPHS ON n VERTICES K_n



ONE EDGE BETWEEN EACH PAIR OF DISTINCT VERTICES

CYCLES C_n, $n \geq 3$



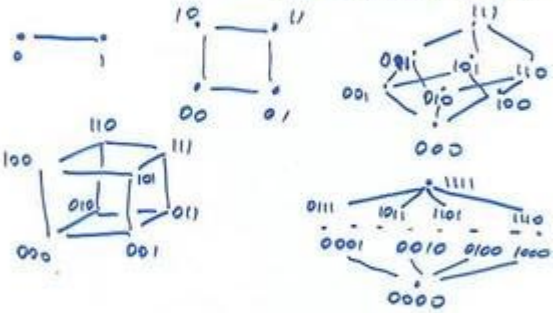
$C_n = \langle V, E \rangle$; $V = \{v_1, \ldots, v_n\}$

$E = \{\{v_1, v_2\}, \{v_2, v_3\}, \ldots, \{v_n, v_1\}\}$

WHEELS: W_n AN ADDITIONAL VERTEX TO C_n

CUBES: Q_n 0-1 STRINGS OF LENGTH n

EDGES = CHANGING ONE BIT



def G IS BIPARTITE IF $V = V_1 \cup V_2$

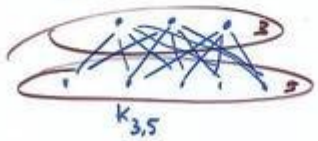
SUCH THAT NO EDGE OF G CONNECTS TWO VERTICES IN V_1 OR TWO VERTICES IN V_2

THE SIMPLIES NOT BIPARTITE

COMPLETE BIPARTITE $K_{m,n}$: (USUALLY ASSUMED $m \leq$

$V = V_1 \cup V_2$ $|V_1| = m$ $|V_2| = n$

THERE IS ONE EDGE BETWEEN ANY $v_1 \in V_1, v_2 \in V_2$



NET WORKS AS GRAPHS

STAR TOPOLOGY

RING TOPOLOGY

HYPRID TOPOLOGIES

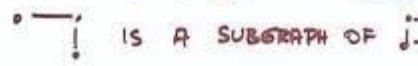
LINEAR ARRAYS

(MULTIPROCESSOR CONNECTION)

TWO-DIMENSIONAL ARRAYS

HYPERCUBES, ETC.

SUBGRAPH: $H=(W,F)$ IS A SUBGRAPH OF $G=(V,E)$ IF $W \subseteq V$, $F \subseteq E$


IS A SUBGRAPH OF


C_5 IS A SUBGRAPH OF W_5 IS SUBGRAPH OF $K_{1,5}$
IS SUBGRAPH OF K_6

UNION OF GRAPHS $(V_1,E_1) \cup (V_2,E_2) =$
$= (V_1 \cup V_2, E_1 \cup E_2)$

HW 7.2: 8 18b,c 24