

I. 1. a) ii

b) i

c) iv

d) iii

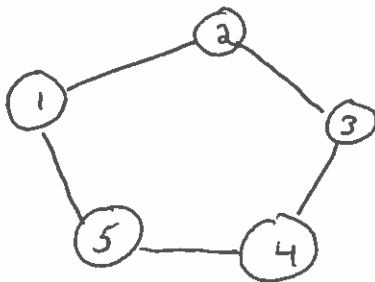
2. a) 1, 2, 3, 4, 1

b) no cycle

c) no cycle

d) 1, 2, 5, 1

3.



4.  $G = (\{1, 2, 3, 4, 5, 6\}, \{1, 2\}, \{2, 3\}, \{3, 1\}, \{3, 4\}, \{3, 5\}, \{1, 4\}, \{4, 5\})$

II. 5. a) i

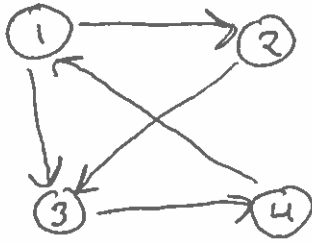
b) iii

c) ii

~~d) i~~

6. b is the only one with a cycle, a and c are DAGs.

7.



This graph is not a DAG

6.  $G = (\{1, 2, 3, 4\}, \{(1, 2), (2, 4), (3, 1), (3, 2), (3, 4)\})$

7.

$$\begin{array}{c}
 \begin{matrix} & 1 & 2 & 3 & 4 \end{matrix} \\
 \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \end{matrix} \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}
 \end{array}$$