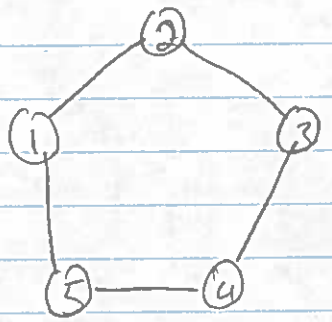
Lucy Wilcox
I completed this assignment without assistance or external resources.

I 1) i) b
ii) a
iii) d
iv) c

2) a has a cycle containing 1, 2, 3, 4, it could start at any of these vertices and move in any direction and come back at the same vertex.

d has a cycle containing 1, 5, 2 which is in the other cycle

3)



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

II 5) i) a
ii) c
iii) b

6) a and c don't have cycles

7)

Not a DAG, it has a cycle 1, 2, 3, 4

labled 6 again on hw

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

9)

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