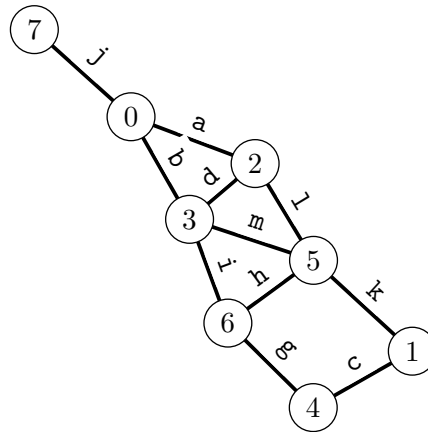**Question 1.** For the graph G pictured bellow describe:

1. list all edges incident with vertex 3

2. list all vertices incident with edge d

3. list all edges that join vertices 7 and 6

Question 2. For the graph G from Question 1:

1. give one walk that is not a trail from vertex 6 to vertex 1

2. give one trail that is not a path from vertex 6 to vertex 1

3. give one path from vertex 6 to vertex 1

Question 3. For the graph G from Question 1:

1. give one closed walk that is not a circuit starting at vertex 6

2. give one circuit that is not a cycle starting at vertex 6

3. give one cycle starting at vertex 6

Question 4. Let Q_n be the graph with vertex set $\{1, 2, \ldots, n\}$. Two vertices are adjacent if and only if their greatest common divisor is 2. Draw Q_{16}.

Question 5. As in Question 4, let Q_n be the graph with vertex set $\{1, 2, \ldots, n\}$, where vertices are adjacent if and only if their greatest common divisor is 2.

1. give the neighborhood of vertex 4 in Q_{18};

2. if one exists, give one cycle of length three in Q_{25} containing vertex 19;

3. if one exists, give one path in Q_{35} from 13 to vertex 2.