**W3D3 Solutions**

**Question 1. Induced Graphs. Answer questions about the graph G = (V,E) displayed below**

Diagram

Description automatically generated

**A. Let U = {A, B}. Draw G[U].**

**B. Let W = {A, C, G, F}. Draw G[W].**

**C. Let Y = {A, B, D, E}. Draw G[Y].**

**Diagram, letter

Description automatically generated**

**D. Consider the following subgraph H of G:**

A picture containing diagram

Description automatically generated

Is there a subset X of the vertex set V so that H = G[X]? Explain.

No, there isn’t, because if H = G[X], then number of vertices of G[X] is same to H, which is {A, B, F}. As H doesn’t have edge (B,F), so it isn’t not induced graph.

**E. Find a way to partition the vertex set V into two subsets V1, V2 so that each of the induced graphs G[V1] and G[V2] is connected and G = G[V1] U G[V2].**

V1 = {D, E, I}, V2 = {A, B, C, F, G, H}

G[V1] is induced graph G

A picture containing text, clock

Description automatically generated

G[V2] is induced graph G

Diagram

Description automatically generated with low confidence