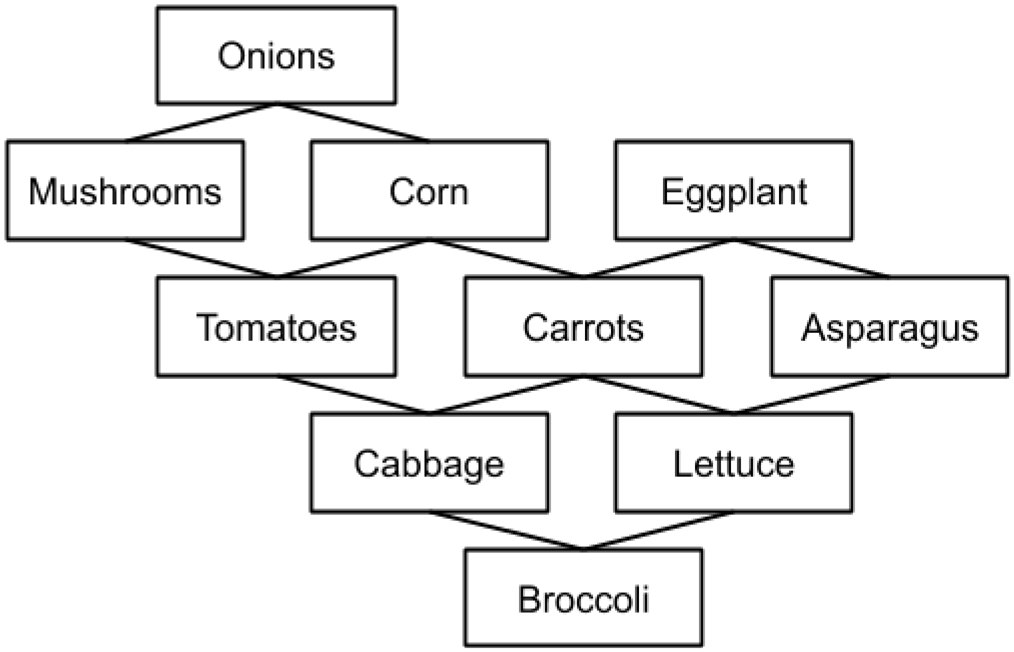
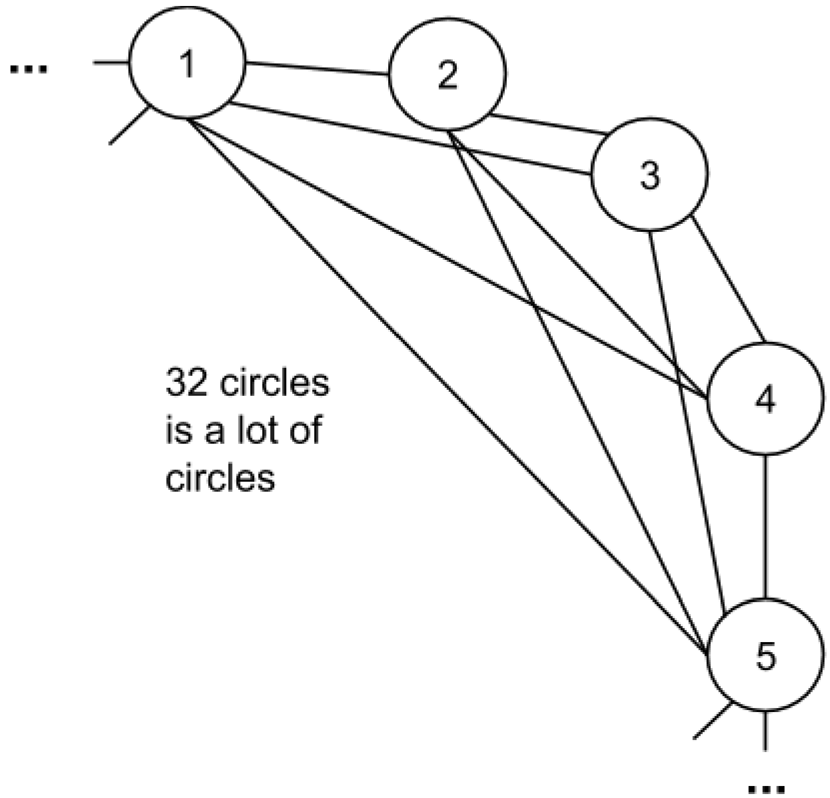


B. Favorites: Onions, Eggplant Least Favorite: Broccoli

C. Broccoli, Cabbage, Lettuce, Tomatoes, Carrots, Asparagus, Mushrooms, Corn, Eggplant, Onions

D. No, this ordering is not unique, as there are multiple possible orderings.

2)



Assume the above graph extends to contain 32 nodes (teams), and each node is connected to every other.

b. N = number of teams F = Number of games between teams G = games played

$$G = (N)(N-1)(F/2)$$

With 32 teams, each playing each team only once, N = 32 and F = 1: $G = (32)(32-1)(½) = 496$

C.

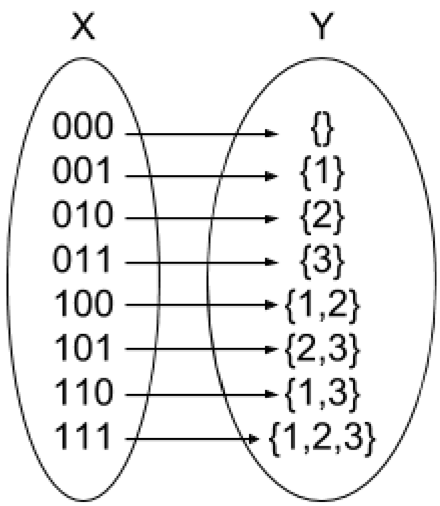
With 32 teams, each playing each team only once, N = 32 and F = 2: $G = (32)(32-1)(2/2) = 992$

D. $G = (N)(N-1)(F/2)$

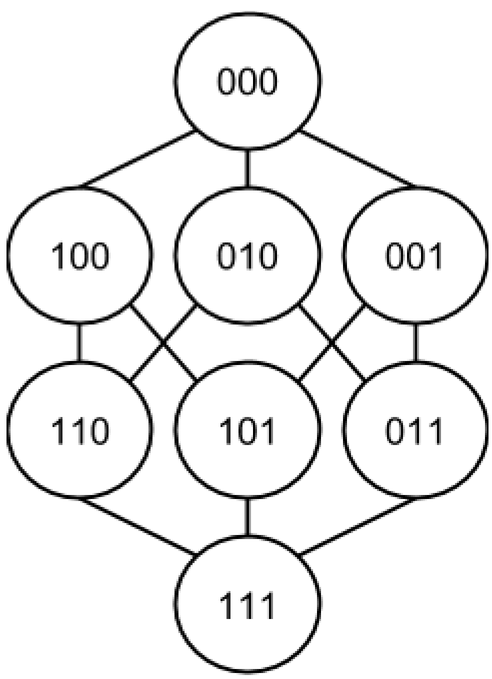
3)

a. P(s) = { {}, {1}, {2}, {3}, {1,2}, {2,3}, {1,3}, {1,2,3} }

b.



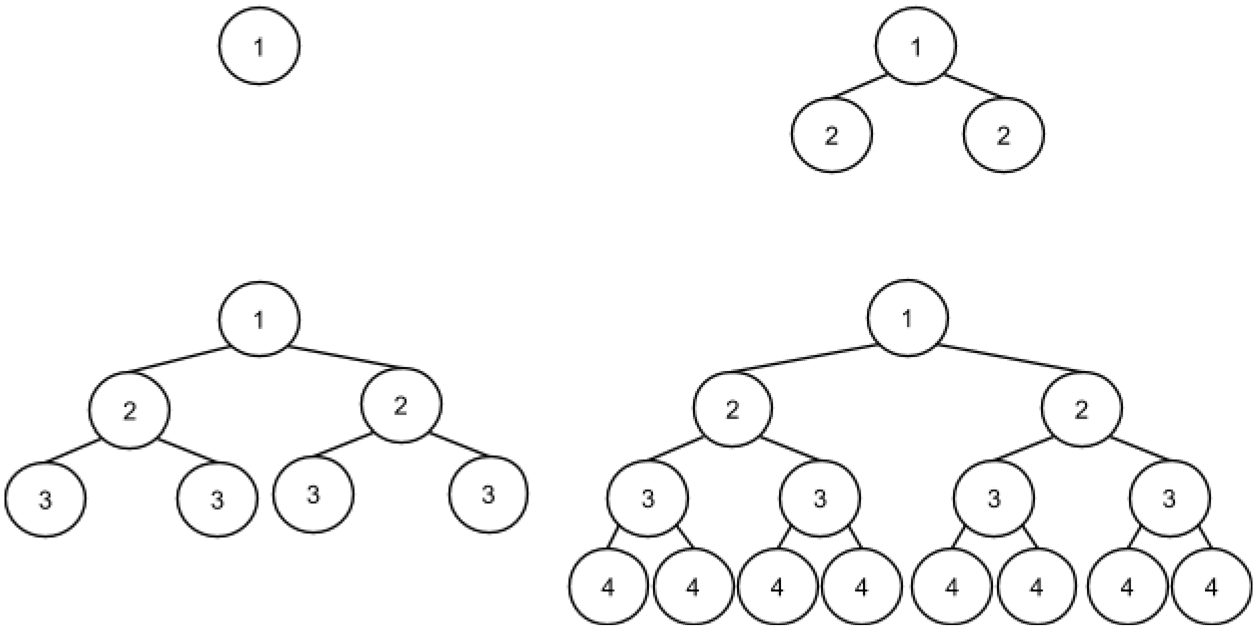
c.



d. All nodes have a degree of 3

4)

a.



b. If a full tree has 7 internal nodes (4 level binary tree), there will be 8 leaf nodes.

c. (I don't actually know what theorem this is talking about so I'm just going to do a proof) If a tree that has k internal nodes has k+1 leaf nodes, adding the total number of nodes together as (k) + (k + 1) = 2k + 1 nodes total.

5)

For a graph to have an Euler path, it is required that there be at *most* two vertices with an odd degree. Based on this logic, we can answer whether the following graphs have Euler paths.

a. No, four vertices with odd degrees
b. Yes, two vertices with odd degrees
c. Yes, zero vertices with odd degrees
d. Yes, zero vertices with odd degrees
e. Yes, zero vertices with odd degrees