DM Assignment -2

1 A person invests Rs.10,000 at the interest of 12% compounded annually. How much will be there at the end of 15 years.

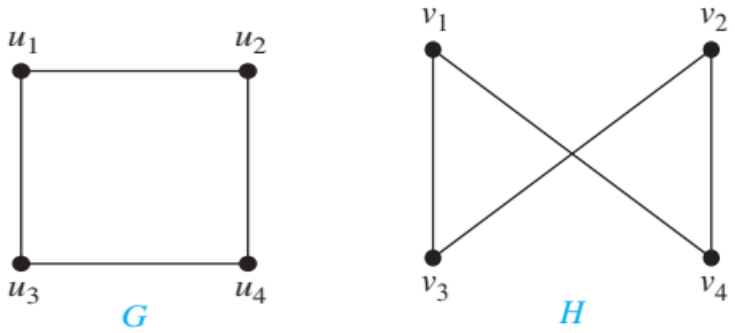
2 Solve the recurrence relation $a_n+4a_{n-1}+4a_{n-2}=8$, $n\geq 2$ and given that $a_0=1, a_1=2$

3 Solve the recurrence relation $a_n=4a_{n-1}-4a_{n-2}+(n+1)2^n$, $n\geq 2$

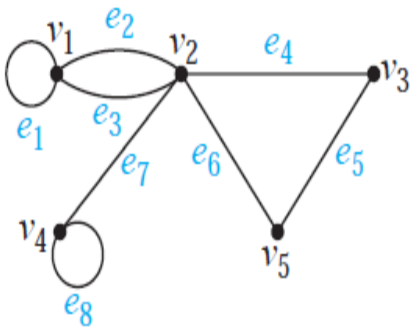
4 Solve the recurrence relation $S(k)-0.25S(k-1)=0$, $S(0)=6$ by the method of substitution.

5 By using the generating function solve the recurrence relation $a_{n+2}+3a_{n+1}+2a_n=3^n, n\geq 0$ and given that $a_0=0, a_1=1$

6 Check whether the following graphs are isomorphic or not.



7 Find the incidence matrix of the graph



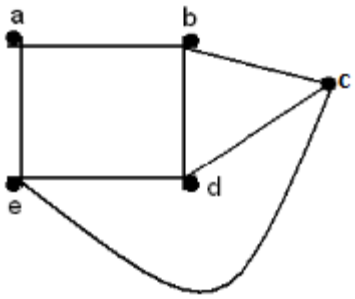
8 Write about Euler and Hamiltonian graphs and give one example for each.

9 Define Planar graph and non-planar graph and also give one example for each.

10 How many edges and internal vertices does a full binary tree with 1000 vertices.

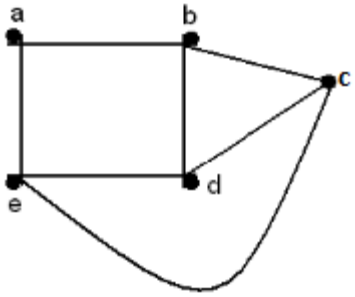
10 Explain BFS and DFS algorithms with an example.

11 Find the number of spanning trees for the following graph



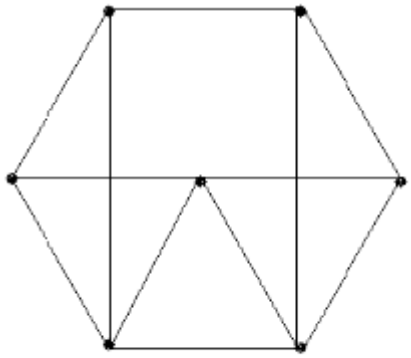
12 Define a spanning tree. Give an example.

13 Apply breadth first search algorithm on the following figure

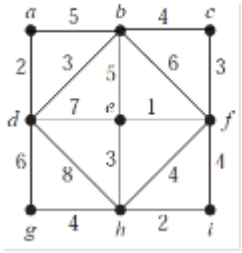


14 Define minimal spanning tree. Explain Krushal's Algorithm with example

15 Find the chromatic number of the following graph



16 Find the minimal tree for the following graph using Kruskal's algorithm.



17 Using generating functions, solve the recurrence relation $a_n = 4a_{n-1} + 3n(2)^n$, n≥1, given that $a_0 = 4$.

18 Show that the following graphs G and H are isomorphic.