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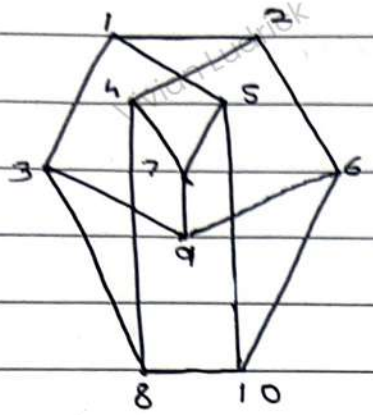
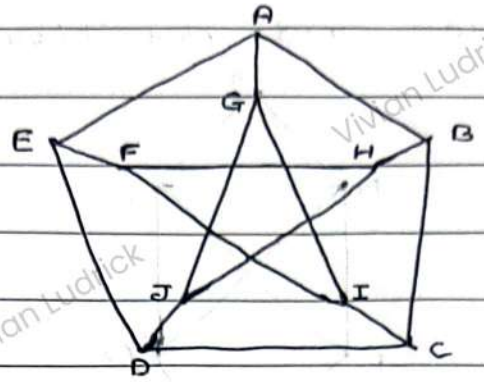
FR CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

DSGT Assignment 3

Q.1.





i. The number of vertices in fig 1; V{1, 2, 3, 4, 5, 6, 7, 8, 9, 10} is equal to number of vertices in fig 2; V{A, B, C, D, E, F, G, H, I, J}.

ii. Degrees:

1 → (3)	A → (3)
2 → (3)	B → (3)
3 → (3)	C → (3)
4 → (3)	D → (3)
5 → (3)	E → (3)
6 → (3)	F → (3)
7 → (3)	G → (3)
8 → (3)	H → (3)
9 → (3)	I → (3)
10 → (3)	J → (3)

∴ From this we can infer that the degree sequence of both graphs is same.

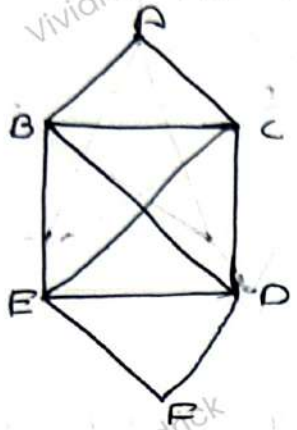
iii. Adjacency The adjacent vertices share the same degree in both graphs G1 and G2

iv. The number of edges in G1 and G2 is same i.e

15 edges.

vi] The graph G1 and G2 are isomorphic graph ~~and the map~~

Q.2 A] Euler and Hamiltonian both:-



As all the edges are visited only once as

AB - BD - DF - FE - EC - CB - BE - ED - DC - CA

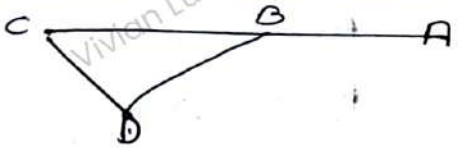
∴ This is an Eulerian path

As all the vertices are visited only once as

A - B - E - F - D - C - A

∴ This is a Hamiltonian circuit.

B] Hamiltonian but not Euler:



As vertices are visited only once as

A - B - C - D

∴ It is Hamiltonian path.

But as the edges will be repeated as

AB - BC - CD - DB - BA

∴ It is not Eulerian path.

Q.3.a] Euler path: AF-FB-BC-CG-GD-DC-CE-EB
-BA-ED

Euler ~~circuit~~ circuit: AF-FB-BC-CG-GD-DC-CE
-EB-BA-ED

b] Hamiltonian path :- AF-FB-BE-EC-CG-GD

Hamiltonian ~~path~~ circuit :- AF-FB-BE-EC-CG-GD-DA