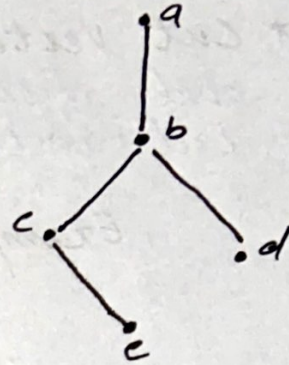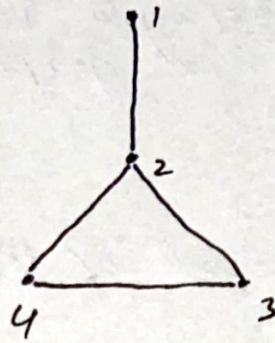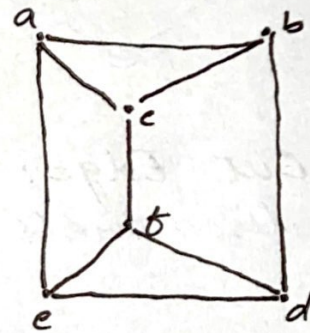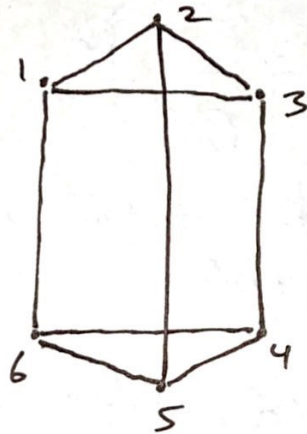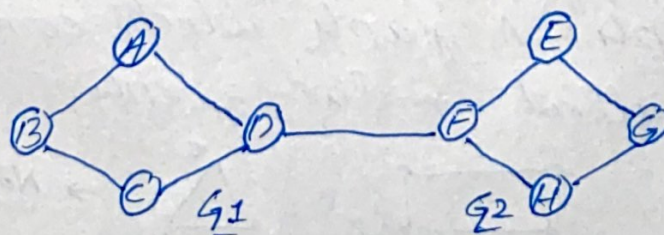Some other examples for practice:

1-

2-

→ **Connectivity:**

→ It is the basic concept of graph theory.

→ Connectivity is defined as it represents weather a graph is connected or not.

→ A graph is said to be connected graph if there is a path/an edge between every pair of vertex.

Applications:
  → Network applications.
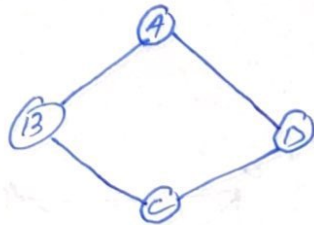 → Routing transportation networks, etc.

Example:

Different terms used in connectivity:

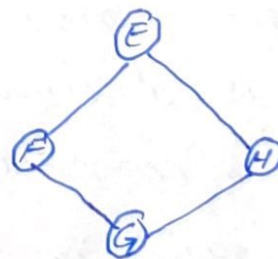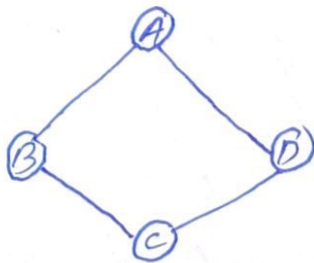* **Cut Vertex :** A single vertex whose removal disconnects a graph is called a cut vertex.

Example:

∴ Removal of Ⓕ from G1 & G2.

* **Cut Edge :** A single edge whose removal disconnets a graph.

∴ Removal of edge between Ⓓ and Ⓕ.

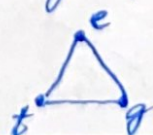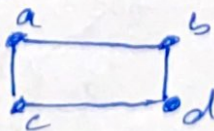

→ Euler and Hamilton Paths:

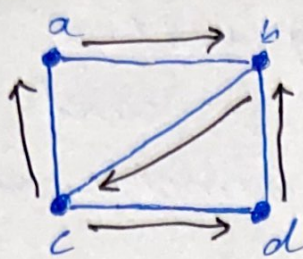→ To understand euler path firstly we have to understand euler cycle/circuit.

Euler Circuit/Cycle : A closed walk which visit every edge of the graph exactly once.

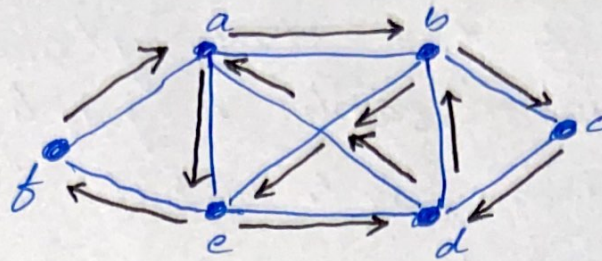**Euler Graph :** A graph which contains a euler cycle is called eular graph.
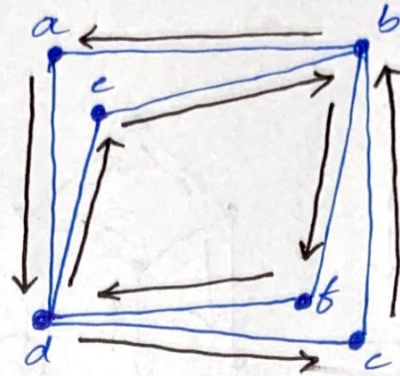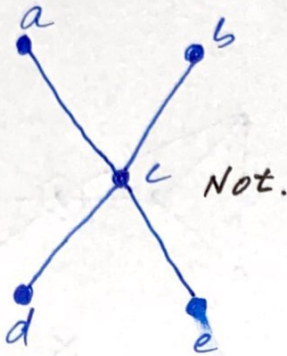
Examples:

 → Not connected.

Sami-Eular

Euler Graph.

Not.

Euler Graph.

Open Euler Walk: A open walk which wisit every edge of the graph exactly once. (But not ends at the same point).

Sami Euler Graph: If a graph contains an open euler walk than it is sami eular graph.

* Important: In short if we want to identify that a graph is euler or not then the degree of every vertex in a graph should be even. If any one of the vertex can't have even degree than graph is not euler.
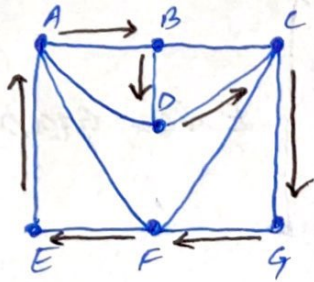
Hamiltonian Graph:

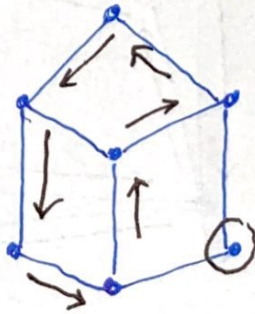→ For hamiltonian graph we need to understand hamiltonian circuit/cycle.

Hamiltonian Circuit/Cycle: In a connected graph is defined as a closed walk that traverse every vertex of graph exactly once,

except of the starting/ending vertex.

Hamiltonian Graph: A graph 'G' is said to be hamiltonian graph if it has hamiltonian circuit/graph.
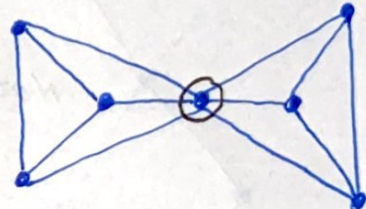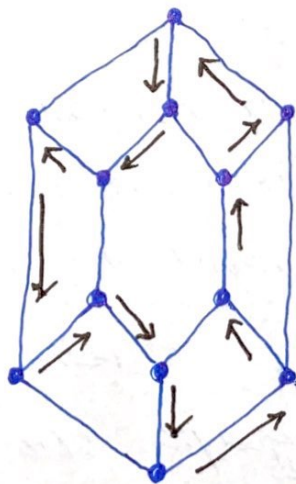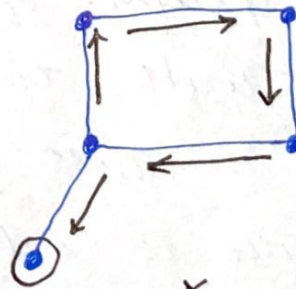
Examples:

Hamiltonian

X

X

Hamiltonian.