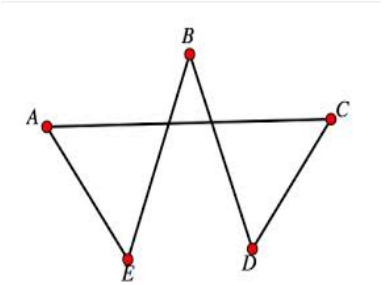
CSN-106: Discrete Structures
(Autumn semester 2022-23)

Name : **Tutorial:** **Date :**
Enrollment No.: **Programme:**

1. **Question:** Consider a connected multigraph with 8 vertices has an Euler circuit. Which one of the degrees is possible for each vertex so that the graph has an Euler circuit?
   - 3
   - 5
   - 4
   - 7
2. **Question:** A given connected graph G is a Euler Graph if and only if all the vertices of G are of:
   - Same degree
   - Even degree
   - Odd degree
   - Different degree
3. **Question:** Which of the following is false
   - Euler Paths exist when there are exactly two vertices of odd degree.
   - A graph with more than two odd vertices will never have an Euler Path or Circuit.
   - Euler circuits exist when the degree of all vertices are even.
   - A graph with one odd vertex will have an Euler Path but not an Euler Circuit.
4. **Question:** Choose the correct option:



   - Hamiltonian path and Hamiltonian circuit
   - Hamiltonian circuit
   - Neither a Hamiltonian path nor Hamiltonian circuit
   - Hamiltonian path
5. **Question:** Elizabeth is planning a trip. She wants to fly out of Charlotte, visit New York, visit Hollywood, and end up at her parent's home in Dallas. Which graph would be best for this scenario?
   - Euler path
   - Euler circuit
   - Hamiltonian path
   - Hamiltonian circuit
6. **Question:** A city is planning their snow plow route for next winter. They want to begin at the garage, go down each street only once, and end at the garage. Which graph would be best for this scenario?
   - Euler graph
   - Euler circuit
   - Hamiltonian graph
   - Hamiltonian circuit