

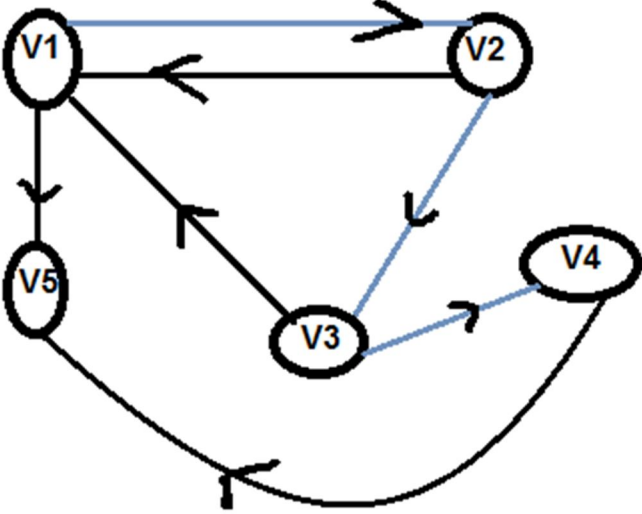
Design and Analysis of Algorithms

Spring 2020, Final-Semester

Instructor: **Muhammad Adil**Asst. Prof. Total Marks: 50

- Attempt all tasks.

Q	Part	Question	Marks
1		<p>Fill in the Blanks.</p> <p>i. A ____ is a Junction where something takes place in Graph.</p> <p>ii. Nodes that share the same Edge are called ____.</p> <p>iii. Two Edges that are incident on same Node are called ____.</p> <p>iv. A path between two nodes covering minimum number of nodes is called ____.</p> <p>v. A Closed Path with more than three edges is called ____.</p> <p>vi. A node with Zero In-Degree is called ____.</p> <p>vii. A node with Zero Out-Degree is called ____.</p> <p>viii. ____ is a Graph with no pair of vertices having a common edge.</p> <p>ix. ____ is a Graph where each node is of the same degree.</p> <p>x. ____ is a Graph where each Edge is assigned a title.</p>	10
2		<p>Convert the following from In-Fix to Pre-Fix and Post-Fix notations.</p> <p>i. $D - Y * (F / G)$</p> <p>ii. $T / W ^ R + S * M - Y ^ K$</p>	05 05
3		<p>Apply Breadth-First Technique on the given Tree.</p> <pre>graph TD; A((A)) --- B((B)); A --- C((C)); A --- D((D)); B --- E((E)); B --- F((F)); C --- G((G)); D --- H((H));</pre>	10

4	<p>Design Adjacency Matrix for the given Graph.</p> 	10
5	<p>Design Directed Graph for the given Adjacency Matrix.</p> $A = \begin{bmatrix} 0 & 1 & 0 & 1 & 1 \\ 1 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 & 0 \\ 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$	10