Node <sub>DC-Dist</sub> Node <sub>D</sub>			Index		Feature Name
Node_point   Nod			<i>N</i> 1	$Node_{DC}$	Node Centrality Degree
Node_n_in_   Node_n_in_					Output Degree of Directed Graph Nodes
Internal Weighted Centrality Degree for Weighted Multiplication of Input E.   Cause					Input Degree of Directed Graph Nodes
Node					Internal Weighted Centrality Degree for Weighted Multiplication of Input Edge
Topological Features					Internal Weighted Centrality Degree for Weighted Multiplication of Resistance
Peatures			N6	$Node_{DC-Outl}$	External Weighted Centrality Degree for Weighted Multiplication of Input Edge
Node Node Node Node Node Node Node Node Node			N7		External Weighted Centrality Degree for Weighted Multiplication of Resistance
Node		reatures	N8	$Node_{Ave\ Dim}$	
Node Node Node Node Node Node Node Node					Minimum Weighted Length Distance from Reservoir to Node in the Directed
Node Node Node Node Node Node Node Node			<i>N</i> 10	$Node_{Min.Path}$	Minimum Weighted Resistance Distance from Reservoir to Node in the Directed Graph
Node Node Features			<i>N</i> 11	$Node_{SCC}$	-
Node Features    Node			N12		Weighted Length Closeness Centrality Index in the Undirected Graph
NodeFeaturesNode $CC_{C-dir}$ Weighted Length Closeness Centrality Index in the Directed GraphNode $CC_{C-dir}$ Weighted Length Betweenness Centrality Index in the Undirected GraphN16 $Node_{BC-Und}$ Weighted Length Betweenness Centrality Index in the Undirected GraphN17 $Node_{BC-Und}$ Weighted Length Betweenness Centrality Index in the Undirected GraphN18 $Node_{BC-Und}$ Weighted Length Betweenness Centrality Index in the Directed GraphN19 $Node_{BC-Und}$ Weighted Length Betweenness Centrality Index in the Directed GraphN20 $Node_{BC-Und}$ Weighted Length Eigenvector Centrality Index in the Undirected GraphN21 $Node_{EC-Und}$ Weighted Length Eigenvector Centrality Index in the Directed GraphN22 $Node_{EC-Und}$ Weighted Length Node Eccentricity Index in the Undirected GraphN24 $Node_{EC-Und}$ Weighted Length Node Eccentricity Index in the Undirected GraphN24 $Node_{EC-Und}$ Weighted Resistance Node Eccentricity Index in the Undirected GraphHydraulicN26 $Node_{Ec-Und}$ Weighted Resistance Node Eccentricity Index in the Undirected GraphHydraulicN26 $Node_{Demand}$ Consumption Flow Rates at NodesFeaturesN27 $Node_{Pressure}$ Pressure at NodesFeaturesEdgePipe Diameter IndexEdgeEdge PrictionPipe Length IndexFeaturesEdge PolameterWeighted Length Edge Betweenness Centrality Index in the Undirected GraphWeighted			<i>N</i> 13		Weighted Resistance Closeness Centrality Index in the Undirected Graph
Node			N14		Weighted Length Closeness Centrality Index in the Directed Graph
Weighted Length Betweenness Centrality Index in the Undirected Graph  N18 Node <sub>BC-Und</sub> N19 Node <sub>BC-dir</sub> N19 Node <sub>BC-dir</sub> N20 Node <sub>CC-Und</sub> N21 Node <sub>CC-Und</sub> Weighted Length Betweenness Centrality Index in the Undirected Graph  N21 Node <sub>CC-Und</sub> N22 Node <sub>CC-Und</sub> N23 Node <sub>CC-Und</sub> N24 Node <sub>CC-Und</sub> N25 Node <sub>CC-Und</sub> Weighted Length Eigenvector Centrality Index in the Directed Graph  Weighted Length Eigenvector Centrality Index in the Directed Graph  Weighted Length Eigenvector Centrality Index in the Directed Graph  Weighted Length Eigenvector Centrality Index in the Directed Graph  N26 Node <sub>CC-Und</sub> Weighted Length Node Eccentricity Index in the Undirected Graph  Weighted Length Node Eccentricity Index in the Undirected Graph  Weighted Length Node Eccentricity Index in the Undirected Graph  Weighted Length Node Eccentricity Index in the Undirected Graph  Weighted Length Node Eccentricity Index in the Undirected Graph  Weighted Length Node Eccentricity Index in the Undirected Graph  Weighted Length Node Eccentricity Index in the Undirected Graph  Weighted Length Node Eccentricity Index in the Undirected Graph  Weighted Length Selection Pressure at Nodes  Features  Foological  Features  Edge  Features  Weighted Length Edge Betweenness Centrality Index in the Undirected Graph  Weighted Length Edge Betweenness Centrality Index in the Undirected Graph  Weighted Length Edge Betweenness Centrality Index in the Undirected Graph  Weighted Length Edge Betweenness Centrality Index in the Undirected Graph  Weighted Length Edge Betweenness Centrality Index in the Undirected Graph  Weighted Length Edge Betweenness Centrality Index in the Undirected Graph  Weighted Length Edge Betweenness Centrality Index in the Undirected Graph  Weighted Length Edge Betweenness Centrality Index in the Undirected Graph  Weighted Length Edge Betweenness Centrality Index in the Undirected Graph  Weighted Length Eigenvector Centrality Index in the Undirected Graph  Weighted Length Eigenvector Centrality Index in the Undirected Graph  Weighted			<i>N</i> 15		Weighted Resistance Closeness Centrality Index in the Directed Graph
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			N16		Weighted Length Betweenness Centrality Index in the Undirected Graph
N18			N17		Weighted Resistance Betweenness Centrality Index in the Undirected Graph
			<i>N</i> 18		Weighted Length Betweenness Centrality Index in the Directed Graph
EdgeN20Node $_{EC-Und}$ Weighted Length Eigenvector Centrality Index in the Undirected GraphN21Node $_{EC-dir}$ Weighted Length Eigenvector Centrality Index in the Directed GraphN22Node $_{EC-Und}$ Weighted Resistance Eigenvector Centrality Index in the Undirected GraphN23Node $_{EC-Und}$ Weighted Length Node Eccentricity Index in the Undirected GraphN25Node $_{ECC-Und}$ Weighted Resistance Node Eccentricity Index in the Undirected GraphHydraulicN26Node $_{Demand}$ Consumption Flow Rates at NodesFeaturesN27Node $_{Pressure}$ Pressure at NodesPipe Roughness IndexPipe Roughness IndexFeaturesE2Edge $_{Diamete}$ Pipe Diameter IndexEdgeE4Edge $_{Length}$ Weighted Length Edge Betweenness Centrality Index in the Undirected GraphWeighted Length Edge Betweenness Centrality Index in the Undirected GraphWeighted Resistance Edge Betweenness Centrality Index in the Undirected Graph			N19		Weighted Resistance Betweenness Centrality Index in the Directed Graph
			N20		Weighted Length Eigenvector Centrality Index in the Undirected Graph
			N21		Weighted Length Eigenvector Centrality Index in the Directed Graph
			N22		Weighted Resistance Eigenvector Centrality Index in the Directed Graph
EdgeN24Node $_{EcC-Und}$ Weighted Length Node Eccentricity Index in the Undirected GraphN25Node $_{EcC-Und}$ Weighted Resistance Node Eccentricity Index in the Undirected GraphHydraulicN26Node $_{Demand}$ Consumption Flow Rates at NodesFeaturesN27Node $_{Pressure}$ Pressure at NodesTopologicalE1Edge $_{Friction}$ Pipe Roughness IndexFeaturesE2Edge $_{Diamete}$ Pipe Diameter IndexEdgeE3Edge $_{Length}$ Weighted Length Edge Betweenness Centrality Index in the Undirected GraphFeaturesE4Edge $_{BC-Und}$ Weighted Resistance Edge Betweenness Centrality Index in the Undirected GraphWeighted Resistance Edge Betweenness Centrality Index in the Undirected Graph			N23		Subgraph Centrality Index in the Undirected Graph
N25Node $_{ECC-Unc}$ Weighted Resistance Node Eccentricity Index in the Undirected GrapHydraulicN26Node $_{Demand}$ Consumption Flow Rates at NodesFeaturesN27Node $_{Pressure}$ Pressure at NodesTopologicalE1 $Edge_{Friction}$ Pipe Roughness IndexFeaturesE2 $Edge_{Diamete}$ Pipe Diameter IndexE3 $Edge_{Length}$ Pipe Length IndexFeaturesE4 $Edge_{BC-Und}$ Weighted Length Edge Betweenness Centrality Index in the Undirected GraphFeaturesF5 $Edge_{BC-Und}$ Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graph			N24		Weighted Length Node Eccentricity Index in the Undirected Graph
Hydraulic Features $N26$ $Node_{Demand}$ Consumption Flow Rates at NodesTopological FeaturesE1 $Edge_{Friction}$ Pipe Roughness IndexFeaturesE2 $Edge_{Diamete}$ Pipe Diameter IndexEdgeE3 $Edge_{Length}$ Pipe Length IndexFeaturesE4 $Edge_{BC-Und}$ Weighted Length Edge Betweenness Centrality Index in the Undirected GraFeaturesFeaturesWeighted Resistance Edge Betweenness Centrality Index in the Undirected Gra			N25		Weighted Resistance Node Eccentricity Index in the Undirected Graph
Features       N27       Node $p_{ressure}$ Pressure at Nodes         Topological       E1       Edge $p_{riction}$ Pipe Roughness Index         Features       E2       Edge $p_{liamete}$ Pipe Diameter Index         Edge       E3       Edge $p_{length}$ Weighted Length Edge Betweenness Centrality Index in the Undirected Grammer         Features       E4       Edge $p_{log}$ Weighted Resistance Edge Betweenness Centrality Index in the Undirected Grammer		Hydraulic	N26		Consumption Flow Rates at Nodes
Features     E1 $Edge_{Friction}$ Pipe Roughness Index       Features     E2 $Edge_{Diamete}$ Pipe Diameter Index       False     E3 $Edge_{Length}$ Pipe Length Index       Features     E4 $Edge_{BC-Und}$ Weighted Length Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graw Weig		Features	N27		
Features     E2 $Edge_{Diamete}$ Pipe Diameter Index       Edge     Figure Length Index       Edge     E4 $Edge_{Length}$ Weighted Length Edge Betweenness Centrality Index in the Undirected Gra       Features     Figure Length Index       Weighted Length Edge Betweenness Centrality Index in the Undirected Gra       Weighted Resistance Edge Betweenness Centrality Index in the Undirected Gra		Topological	E1		
Edge     Edge $Edge_{Length}$ Weighted Length Edge Betweenness Centrality Index in the Undirected Gra       Features     Fedge $Edge_{BC-Und}$ Weighted Resistance Edge Betweenness Centrality Index in the Undirected Gra		Features	E2		•
Features  E4 Eage <sub>BC-Undl</sub> Weighted Resistance Edge Betweenness Centrality Index in the Undirected Weighted Resistance Edge Betweenness Centrality Index in the Undirected Page 18 of the Undirected Pa			E3		Pipe Length Index
Features Weighted Resistance Edge Betweenness Centrality Index in the Undirected	Edge		E4	$Edge_{BC-Undi}$	Weighted Length Edge Betweenness Centrality Index in the Undirected Graph
Graph	Features		<i>E</i> 5	$Edge_{BC-Undi}$	Weighted Resistance Edge Betweenness Centrality Index in the Undirected Graph
E6 Edge <sub>BC-dir</sub> Weighted Length Edge Betweenness Centrality Index in the Directed Grap			<u>E6</u>	$Edge_{BC-dir-}$	Weighted Length Edge Betweenness Centrality Index in the Directed Graph
E7 Weighted Resistance Edge Betweenness Centrality Index in the Directed Gra					Weighted Resistance Edge Betweenness Centrality Index in the Directed Graph
Hydraulic E8 Edge <sub>velocity</sub> Flow Velocity Index in Pipe		Hydraulic			Flow Velocity Index in Pipe
Features E9 $Edge_{HeadLos}$ Energy Loss Index per Pipe Length		_			Energy Loss Index per Pipe Length

		<i>G</i> 1	$Graph_{Ave.Mir}$	Average Minimum Weighted Length Distance from Reservoir to Node in the Overall Directed Graph
		G2	$Graph_{Ave.Mir}$	Average Minimum Weighted Resistance Distance from Reservoir to Node in the Overall Directed Graph
		<i>G</i> 3	$Graph_{Dia-Un}$	Graph Diameter of Weighted Length Type in Overall Undirected Graph
		<i>G</i> 4	$Graph_{Dia-Un}$	Graph Diameter of Weighted Resistance Type in the Overall Undirected Graph
		<i>G</i> 5	$Graph_{Rad-U1}$	Graph Radius of Weighted Length Type in the Overall Undirected Graph
		<i>G</i> 6	$Graph_{Rad-U1}$	Graph Radius of Weighted Resistance Type in the Overall Undirected Graph
		G7	$Graph_{Effi-U}$	Graph Efficiency in the Overall Undirected Graph
		G8	$Graph_{Ave.CC}$	Average Closeness Centrality Index of Weighted Length Type in the Overall Undirected Graph
	Topological	<i>G</i> 9	$Graph_{Ave.CC}$ -	Average Closeness Centrality Index of Weighted Resistance Type in the Overall Undirected Graph
	Features	<i>G</i> 10	$Graph_{Ave.CC}$ -	Average Closeness Centrality Index of Weighted Length Type in the Overall Directed Graph
		<i>G</i> 11	$Graph_{Ave.CC}$ -	Average Closeness Centrality Index of Weighted Resistance Type in the Overall Directed Graph
		G12	$Graph_{Ave.BC}$	Average Betweenness Centrality Index of Weighted Length Type in the Overall Undirected Graph
		<i>G</i> 13	$Graph_{Ave.BC}$	Average Betweenness Centrality Index of Weighted Resistance Type in the Overall Undirected Graph
		G14	$Graph_{Ave.BC}$ -	Average Betweenness Centrality Index of Weighted Length Type in the Overall  Directed Graph
Graph Features		<i>G</i> 15	$Graph_{Ave.BC}$	Average Betweenness Centrality Index of Weighted Resistance Type in the Overall Directed Graph
		<i>G</i> 16	$Graph_{CD-Uni}$	Dominance of Central Point of Weighted Length Type in the Overall Undirected Graph
		G17	$Graph_{CD-Uni}$	Dominance of Central Point of Weighted Resistance Type in the Overall Undirected Graph
		<i>G</i> 18	$Graph_{CD-dir}$	Dominance of Central Point of Weighted Length Type in Overall Directed Graph
		G19	$Graph_{CD-dir}$	Dominance of Central Point of Weighted Resistance Type in the Overall Directed Graph
		G20	$Graph_{Ave.Deg}$	Average Graph Degree in the Overall Undirected Graph
		G21	$Graph_{Ave.Out}$	Average Output Degree in the Overall Directed Graph
		G22	$Graph_{Max.De}$	Maximum Degree in the Overall Undirected Graph
		G23	Graph <sub>Max.InI</sub>	Maximum Input Degree in the Overall Directed Graph
		G24	$Graph_{{ m Max}.Ou}$	Maximum Output Degree in the Overall Directed Graph
		G25	$Graph_{Ave.LCO}$	Average Node Square Clustering Coefficient in the Overall Undirected Graph
		G26	$Graph_{FV-Und}$	Algebraic Connectivity Index in the Overall Undirected Graph
		G27	$Graph_{\mathrm{FV-Uno}}$	Algebraic Connectivity Index of Weighted Length Type in the Overall Undirected Graph
		G28	$Graph_{FV-Uno}$	Algebraic Connectivity Index of Weighted Resistance Type in the Overall Undirected Graph
		G29	$Graph_{\mathrm{SD-Uno}}$	Spectral Difference of the Overall Undirected Graph
		G30	$Graph_{SD-dir}$	Number of Edges in the Overall Undirected Graph
		G31	$Graph_{ m Density}$	Density of the Overall Undirected Graph
		G32	$Graph_{ m Density}$	Density of the Overall Directed Graph
		G33	$Graph_{Mesh-U}$	Mesh Coefficient of Overall Undirected Graph
		G34	$Graph_{\mathrm{DeadEn}}$	
		G35	Graph <sub>NC-Uni</sub>	Normalized Minimum Cut between Reservoir and First Node with Other Nodes in the Overall Undirected Graph
		G36	Graph <sub>NC-Un</sub>	Normalized Minimum Cut of Weighted Length Type between Reservoir and First Node with Other Nodes in the Overall Undirected Graph

		G37	$Graph_{NC-Un}$	Normalized Minimum Cut of Weighted Resistance Type between Reservoir and
		407	ar aprinc=un	First Node with Other Nodes in Overall Undirected Graph
		G38	$Graph_{NC-Un}$	Normalized Minimum Cut between Terminal Node and Other Nodes in the
				Overall Undirected Graph
		<i>G</i> 39	$Graph_{NC-Un}$	
				and Other Nodes in the Overall Undirected Graph
		G40	$Graph_{NC-Un}$	Normalized Minimum Cut of Weighted Resistance Type between Terminal Node
				and Other Nodes in the Overall Undirected Graph
		G41	$Graph_{TotalLe}$	Total Network Length in the Overall Graph
		G42	$Graph_{R_{HW}}$	Overall Network Resistance Index in the Overall Undirected Graph
	Hydraulic	G43	$Graph_{ResElv}$	Water Level in Reservoir in the Overall Graph
	Features	G44	$Graph_{TotalDot}$	Total Input Flow to Network in the Overall Graph