

National University of Computer and Emerging Sciences, Lahore Campus
Quiz5 [BS(CS): Section D] Fall 2023

Computer Networks (Code: CS3001)

Quiz Date: Novemer 23, 2023

Total Marks: 15

[CLO 3]

Duration: 25 -Minutes

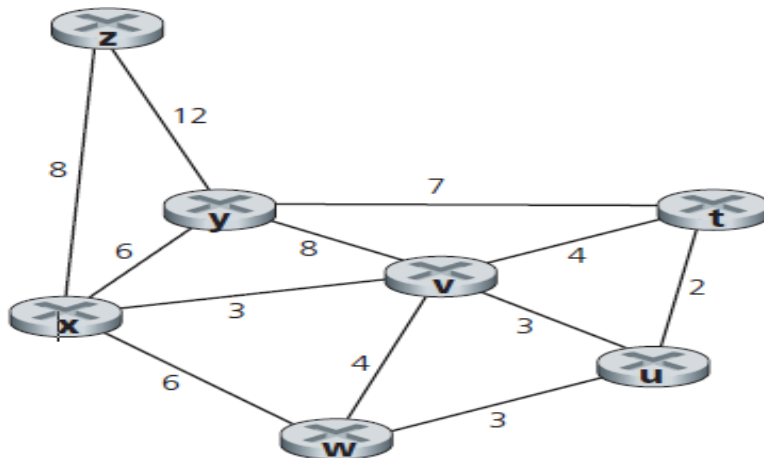
Name ----- Roll #----- Section -----

Q1: What does BGP stand for? Explain the primary purpose of BGP in networking. [0.5+1.5=2]

Q 2: What is the difference between eBGP and iBGP? [2]

Q3: Consider the following network. With the indicated link costs, use Dijkstra's shortest-path algorithm to compute the shortest path from **z** to all network nodes. Show the working of the algorithm in the form of a tabular summary for all iterations (i.e., distance and predecessor for all network nodes during each iteration). Moreover, provide the least-cost-path tree from node **z** and resulting forwarding table in **z**.

[7+2+2=11]



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Start writing your answers from here onwards. Yu can use backside of this sheet if needed.

Answers:

Q1: BGP stands for Border Gateway Protocol. The primary purpose of BGP is to facilitate the exchange of routing and reachability information between different autonomous systems (ASes) on the Internet,

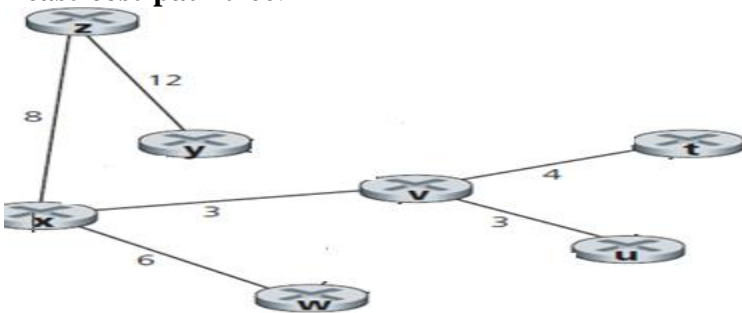
Q 2: eBGP (external BGP) is used between routers in different autonomous systems, while iBGP (internal BGP) is used between routers within the same autonomous system.

Q3:

Tabular Summary

N'	$D(x), p(x)$	$D(u), p(u)$	$D(v), p(v)$	$D(w), p(w)$	$D(y), p(y)$	$D(t), p(t)$
z	8,z	∞	∞	∞	12,z	∞
zx	8,z	∞	11,x	14,x	12,z	∞
zxv	8,z	14,v	11,x	14,x	12,z	15,v
zxvy	8,z	14,v	11,x	14,x	12,z	15,v
zxvyu	8,z	14,v	11,x	14,x	12,z	15,v
zxvyuw	8,z	14,v	11,x	14,x	12,z	15,v
zxvyuwt	8,z	14,v	11,x	14,x	12,z	15,v

Least-cost-path tree:



resulting forwarding table in x:

destination	outgoing link
x	(z,x)
v	(z,x)
w	(z,x)
t	(z,x)
u	(z,x)
y	(z,y)