Principles of Internetworking Protocols

Assignment Ten (20 marks)
(Due on May 19)

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May 15, 2023

Instructions:

1. Submit a pdf file for your answers to i-Learning before 11:59 on May 19. Put down your name, student ID and program/year in your submission.
2. Late submission will not be accepted.
3. Observe also the penalty for plagiarism as stated in the Course Overview slides.

Question 1: OSPF with areas

[10 MARKS] Recall from the slides on link-state routing protocol that the backbone database for the example OSPF network with areas is:

		FROM						
		RT3	RT4	RT5	RT6	RT7	RT10	RT11
	RT3			6				
	RT4		8					
	RT5	8		6	6			
	RT6	8		7			5	
	RT7			6				
*	RT10			7			2	
*	RT11					3		
T	N1	4	4					
O	N2	4	4					
*	N3	1	1					
*	N4	2	3					
	Ia					5		
	Ib			7				
	N6				1	1	3	
	N7				5	5	7	
	N8				4	3	2	
	N9-N11,H1						1	
	N12		8		2			
	N13		8					
	N14		8					
	N15				9			

Draw a spanning tree rooted at RT6 for only internal networks (i.e., N1-N4, N6-N8, and N9-N11) which is the result of running the OSPF protocol.

Question 2: BGP

[10 MARKS] This question concerns BGP. Use `https://bgp.he.net` to help you answer the questions below.

1. [2 MARKS] Which AS advertises `104.16.124.96`? Give its AS number.
2. [2 MARKS] Which organization has this AS number?
3. [2 MARKS] How many IPv4 prefixes are announced by this AS? Include a screenshot to support your answer.
4. [2 MARKS] How many of the IPv4 prefixes in (3) includes `104.16.124.96` and what are they?
5. [2 MARKS] According to the route propagation diagram, how many upstream ASes are used to propagate the routes and what are their AS numbers? Include a screenshot to support your answer.