BRACU Network

Construction of BRAC University's new campus in Badda is almost finished. But authorities can not shift all of their activities to the new campus yet. So, for now, they are going to send some of their departments to the new campus and continue the activities of other departments in the old university buildings (UB2, UB8). Besides, BRACU has a new University Building for the Architecture department in DOHS (UB10). Moreover, BRACU has a Residential Semester campus (TARC) in Savar and a BRAC Learning Center in Chittagong. BRAC NET needs to establish a connection among all of these buildings.

Recently, BRAC IT has recruited you as an IT officer. Now your task is to build the network architecture. The table below denotes the total end devices in each building in brackets and the distances between the two buildings in each cell.

	UB2	**UB8**	**UB10**	**New Campus**	**TARC**	**BRAC Learning Center**
UB2 (312)	0					
UB8 (128)	75	0				
UB10 (234)	148	110	0			
New Campus (1024)	310	385	402	0		
TARC (508)	568	534	440	369	0	
BRAC Learning Center (110)	1024	986	1160	956	1570	0

While creating the network infrastructure, there are certain restrictions and rules that you need to follow:

- Consider each location as a separate network connected by routers.
- Establish connections among all the branches with the shortest route possible
    - Must have at least one floating route.
    - Must have a backup system to handle missing routing entries.
    - Configure devices in UB8 statically, as there is a security concern.
    - Configure devices in TARC, UB10, and New Campus to be routed dynamically where these buildings have 2, 1, and 4 printers, respectively.
    - Configure the rest of the network statically or dynamically (It's your choice).
- Choose an appropriate network address and create subnets to assign to each building with the least amount of waste.
- UB2 and BRAC Learning Center will be communicating via email, so set up an email server for sending and receiving emails between UB2 and BRAC Learning Center.

- UB8 has a web server, from where every device can access www.bracu.ac.bd. Place DNS servers accordingly.
- Assign ip addresses to all interfaces and devices. You have to show at least two end devices for a location.
- Every PC should be able to ping each other after completion. You have to remember the default route cannot be used while exchanging packets. Data will be delivered using standard static routes or dynamic routes.

Deliverables

- The network mentioned above should be implemented in packet tracer, with necessary devices and full configuration.
- After completion, you should be able to test the conditions imposed.
- You will have to submit the following:
    - Network topology diagram with proper labels.
    - The configuration commands of all the routers that you have implemented.
    - VLSM tree
    - IP address table