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| ***Roll No*** | ***22SW040 🡪 Section\_01*** |
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| ***Subject*** | ***CN Practical (LAB\_13)*** |
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***Note on IGRP Configuration in Cisco Packet Tracer***

*In this lab, the Interior Gateway Routing Protocol (IGRP) was originally specified for configuration. However, IGRP has been deprecated and is no longer supported in the latest versions of Cisco IOS and Cisco Packet Tracer due to its limitations in scalability and efficiency. Cisco has replaced IGRP with Enhanced IGRP (EIGRP), which offers improved performance, more robust features, and support for modern network requirements.*

*Due to this deprecation, IGRP cannot be implemented in Cisco Packet Tracer. For this lab, EIGRP or an alternative routing protocol can be used as a substitute for IGRP configuration (you can follow my lab 11 and 12 submission). This substitution reflects the current industry standards and maintains the intended learning objectives of routing protocol configuration within an autonomous system (AS).*

***ANSWERING THE QUESTIONS MENTIONED IN THE HANDOUT***

***Q). Are all the necessary interfaces up?***

*Yes, all the necessary interfaces appear to be up(acc to the handout). In the output for each router, interfaces “Serial0” and “Ethernet0” (and “Serial1” on Router2) show a status of "up" with protocols also indicating "up."*

***Q). What are the entries in the ROUTER1 routing table?***

*From the initial configuration without IGRP, the entries are as follows:*

*“192.168.0.0/24” is directly connected to “Serial0”*

*“192.168.1.0/24” is directly connected to “Ethernet0”*

***Q). Why does the interface Serial1 have a different network address compared to Serial0?***

*Serial1 on Router2 is configured with the IP address “172.16.0.1”, which is in the network “172.16.0.0/16”. This is a different subnet because it is intended to connect Router2 to Router3, forming a separate network for interrouter communication.*

***Q). List the routes listed in the routing table.***

*After configuring IGRP, the routing tables for each router include the following routes:*

*Router1:*

*“192.168.0.0/24” (directly connected to “Serial0”)*

*“192.168.1.0/24” (directly connected to “Ethernet0”)*

*“172.16.0.0/16” learned via IGRP through “192.168.0.2” on “Serial0”*

*“192.168.2.0/24” learned via IGRP through “192.168.0.2” on “Serial0”*

*“192.168.3.0/24” learned via IGRP through “192.168.0.2” on “Serial0”*

*Router2:*

*“192.168.0.0/24” (directly connected to “Serial0”)*

*“172.16.0.0/16” (directly connected to “Serial1”)*

*“192.168.2.0/24” (directly connected to “Ethernet0”)*

*“192.168.1.0/24” learned via IGRP through “192.168.0.1” on “Serial0”*

*“192.168.3.0/24” learned via IGRP through “172.16.0.2” on “Serial1”*

*Router3:*

*“172.16.0.0/16” (directly connected to “Serial0”)*

*“192.168.3.0/24” (directly connected to “Ethernet0”)*

*“192.168.0.0/24” learned via IGRP through “172.16.0.1” on “Serial0”*

*“192.168.2.0/24” learned via IGRP through “172.16.0.1” on “Serial0”*

*“192.168.1.0/24” learned via IGRP through “172.16.0.1” on “Serial0”*

***Q). What is the administrative distance?***

*The default administrative distance for IGRP is 100.*

***Q). Type “show ip route 192.168.2.0” on ROUTER1 at the privileged exec mode.***

*This command would show the specific route entry to reach network “192.168.2.0”. It should indicate the path through “192.168.0.2” (Router2’s Serial0 interface) over IGRP.*

***Q). What is the total delay for this route?***

*The total delay, as per IGRP metrics, is 651 (seen in the “[100/651]” entry in the route).*

***Q). What is the minimum bandwidth?***

*The minimum bandwidth for IGRP is 64000 Kbps or 64 Kbps, typically the default bandwidth set on the serial interface.*

***Q). What is the reliability of this route?***

*Reliability is a dynamic metric that ranges from 0 (unreliable) to 255 (100% reliable). In this setup, if not specified otherwise, the default would be high (close to 255) as there’s no indication of link issues.*

***Q). What is the minimum MTU size for this route?***

*The default MTU for Ethernet and Serial interfaces typically ranges from 1500 bytes (for Ethernet) to 1500 bytes or less on Serial, depending on the type of connection.*