Министерство науки и высшего образования Российской Федерации
Федеральное государственное бюджетное образовательное учреждение высшего образования
«Московский государственный технический университет имени Н.Э. Баумана
(национальный исследовательский университет)»
(МГТУ им. Н.Э. Баумана)

ФАКУЛЬТЕТ **ИНФОРМАТИКА И СИСТЕМЫ УПРАВЛЕНИЯ**

КАФЕДРА **ПРОГРАММНОЕ ОБЕСПЕЧЕНИЕ ЭВМ И ИНФОРМАЦИОННЫЕ ТЕХНОЛОГИИ**

НАПРАВЛЕНИЕ ПОДГОТОВКИ **09.03.04 Программная инженерия**

Отчет **по лабораторной работе №** 8

Дисциплина: Компьютерные сети

Студент	ИУ7-71Б		Плотников В.С.
	(Группа)	(Подпись, дата)	(И.О. Фамилия)
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		(Подпись, дата)	(И.О. Фамилия)

Москва, 2021

Задачи.

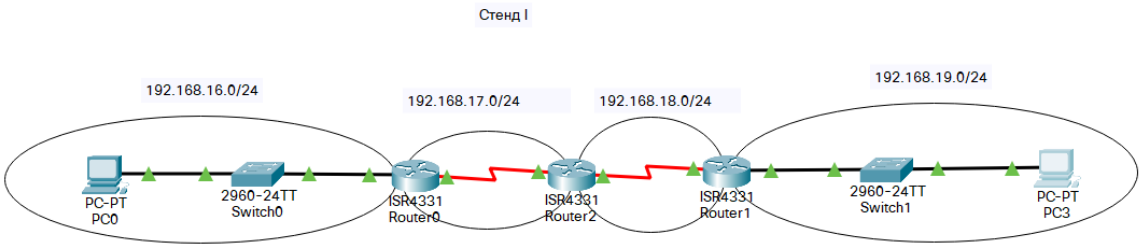
I. Назначить адреса подсетей:
   a) Подсеть 1: 192.168.x.0 /24
   b) Подсеть 2: 192.168.x+1.0 /24
   c) Подсеть 3: 192.168.x+2.0 /24
   d) Подсеть 4: 192.168.x+3.0 /24
   e) Подсеть 5 (В задаче III): 192.168.x+10.0 /24

II. Настроить динамическую маршрутизацию в прилагаемом .pkt файле на стенде I через протокол RIPv2 так, чтобы пинг любым хостом или маршрутизатором любого другого хоста или маршрутизатора был успешным.
   Представить отдельным .pkt файлом.

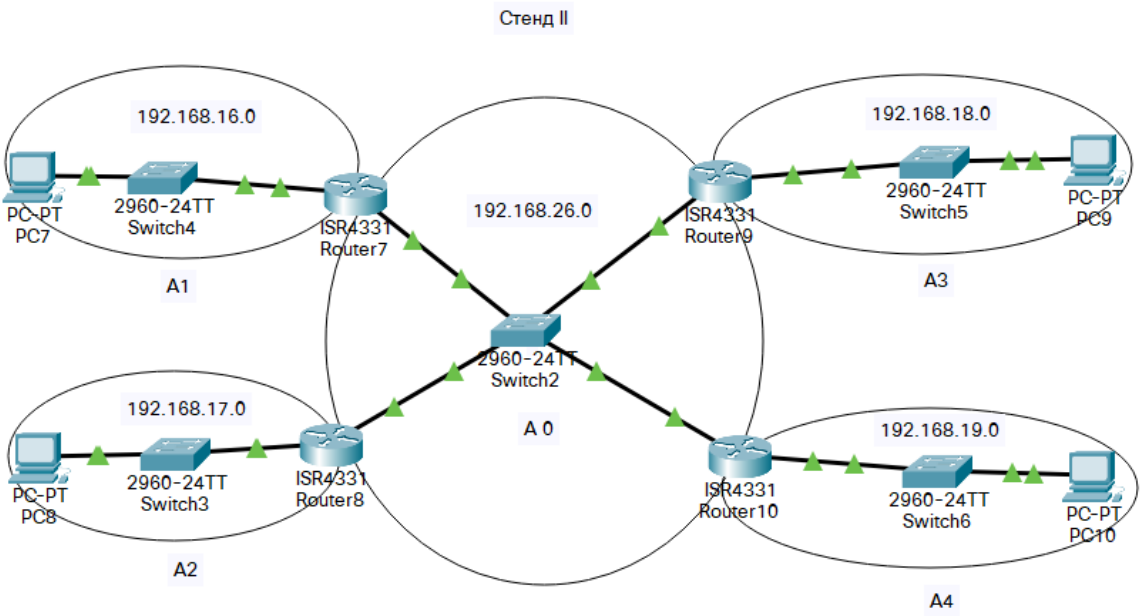
III. Настроить динамическую маршрутизацию в сети в прилагаемом .pkt файле на стенде II через протокол OSPF так, чтобы пинг любым хостом или маршрутизатором любого другого хоста или маршрутизатора был успешным. Разделить при этом сеть на области OSPF в соответствии со схемой. Выполнить указания в лабораторной работе.
   Представить отдельным .pkt файлом.

Задание I.

Разделение на подсети на стенде I:

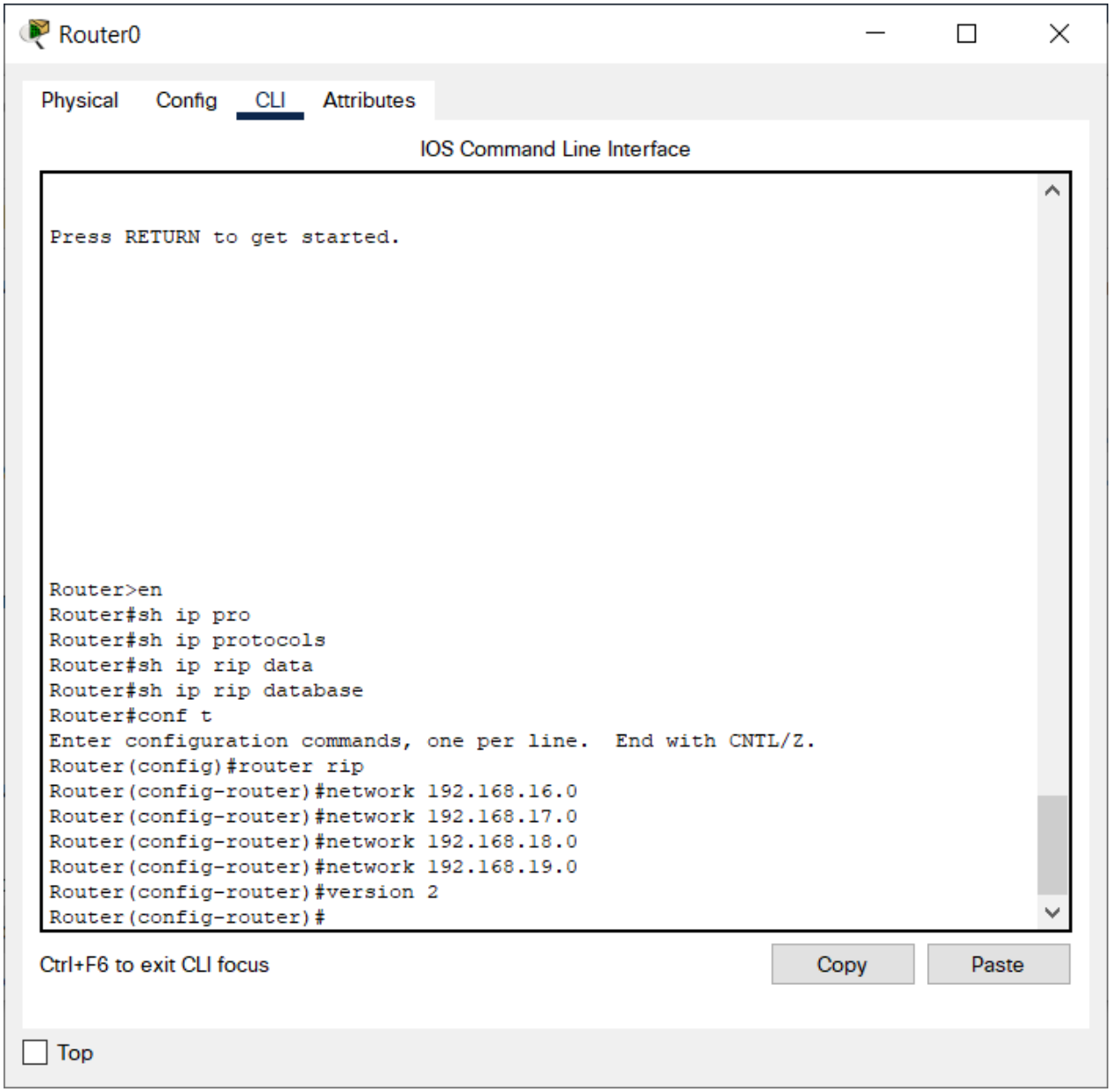


Разделение на подсети на стенде II:



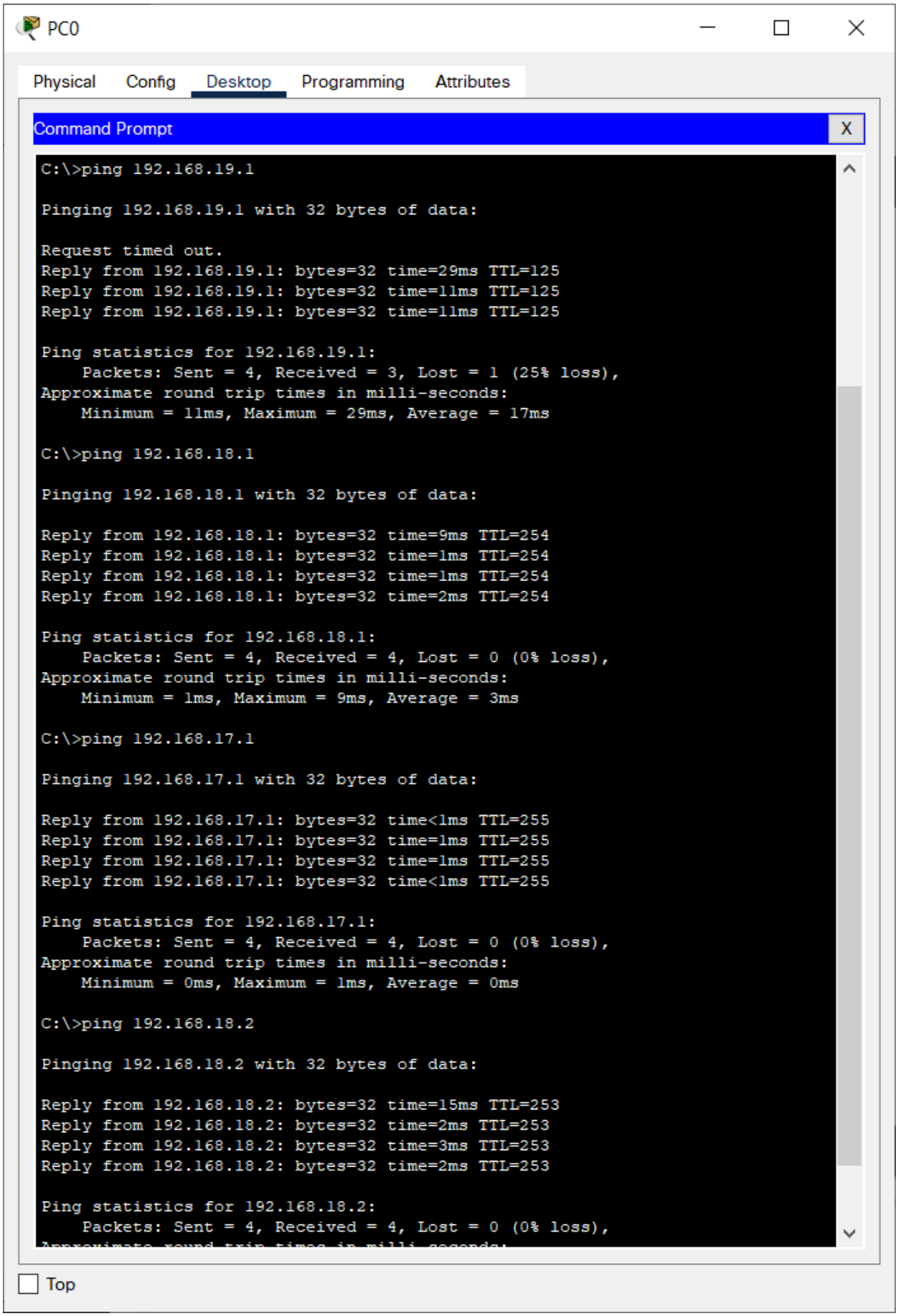
Задание II.

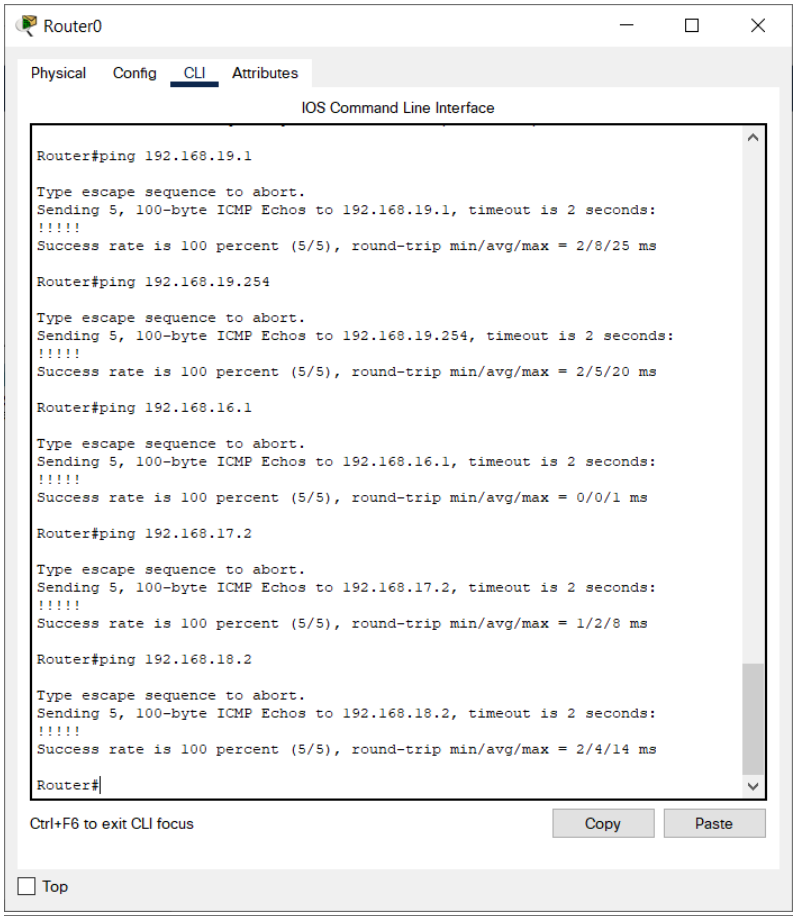
Настройка RIPv2 для Router0:

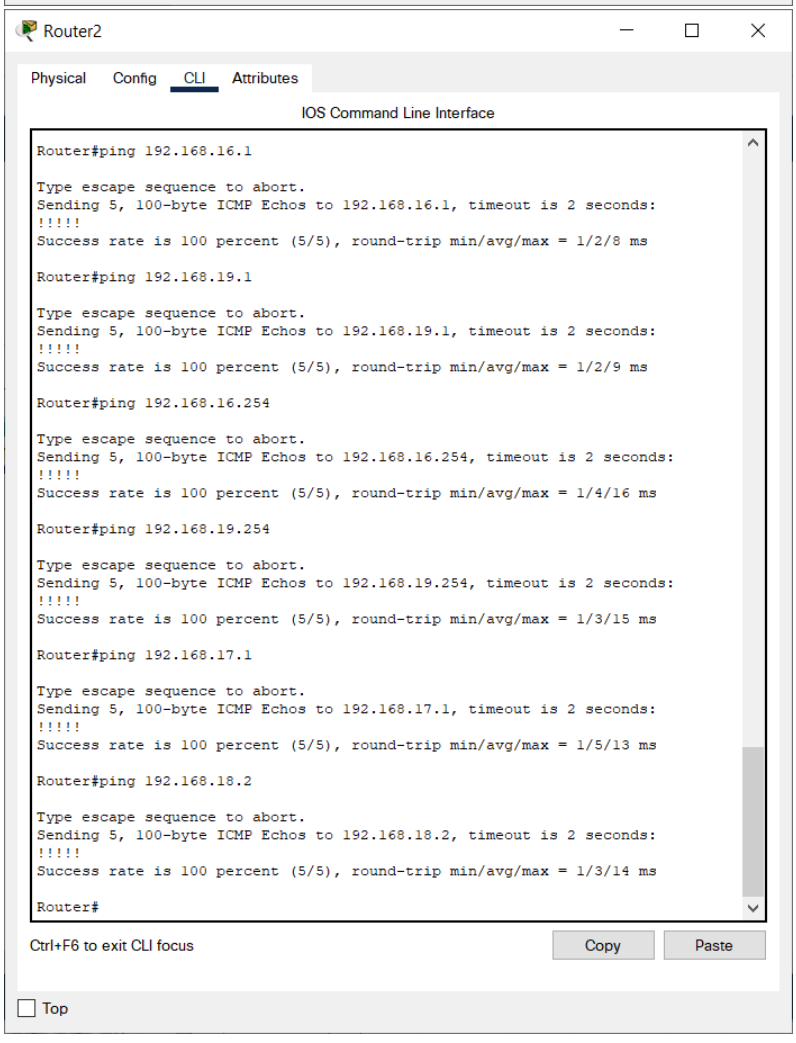


Настройка остальных маршрутизаторов аналогична.

Проверка пингов:

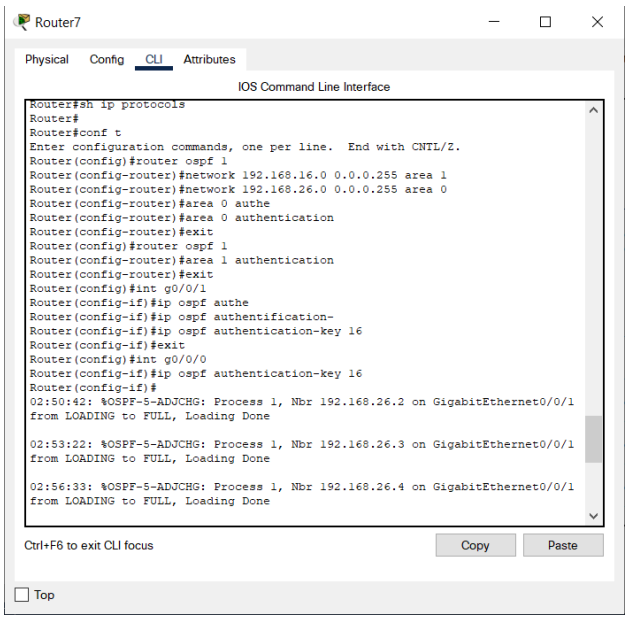


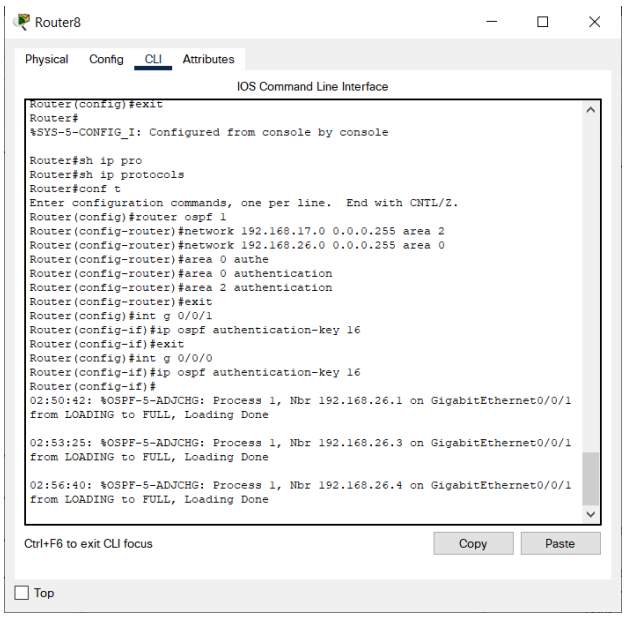

Router0
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router#ping 192.168.19.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.19.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/8/25 ms
Router#ping 192.168.19.254
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.19.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/5/20 ms
Router#ping 192.168.16.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.16.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms
Router#ping 192.168.17.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.17.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/8 ms
Router#ping 192.168.18.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.18.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/4/14 ms
Router#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

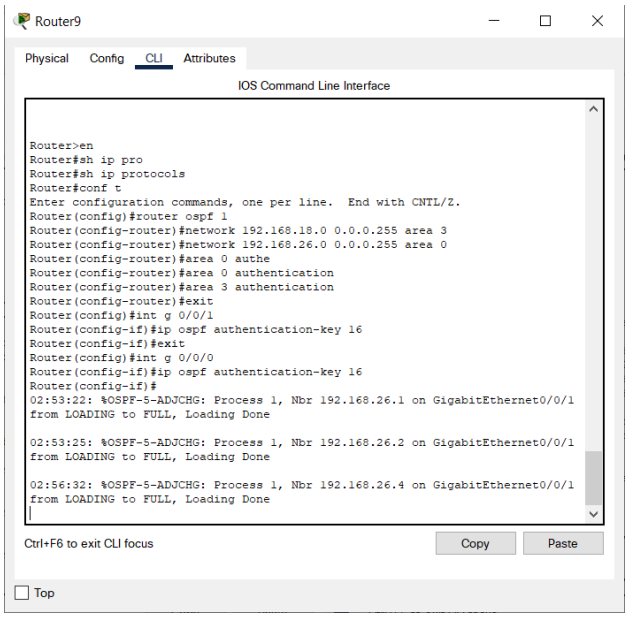

Router2
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router#ping 192.168.16.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.16.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/8 ms
Router#ping 192.168.19.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.19.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/9 ms
Router#ping 192.168.16.254
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.16.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/4/16 ms
Router#ping 192.168.19.254
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.19.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/3/15 ms
Router#ping 192.168.17.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.17.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/5/13 ms
Router#ping 192.168.18.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.18.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/3/14 ms
Router#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

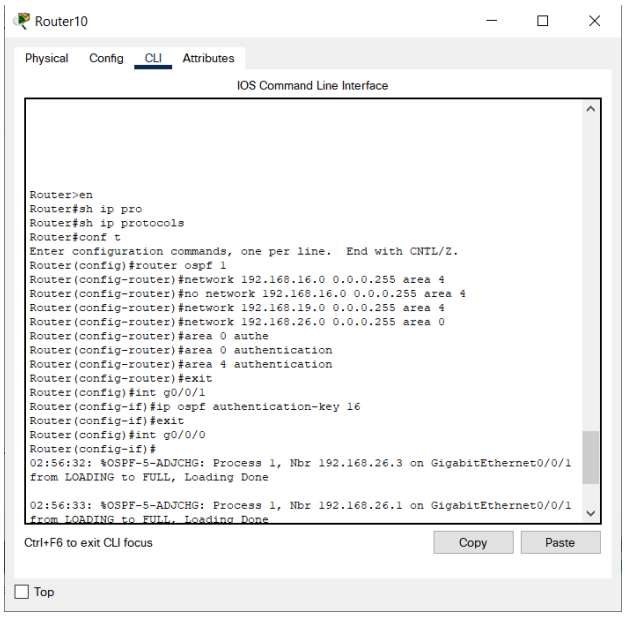
Задание III.

Настройка OSPF для маршрутизаторов:

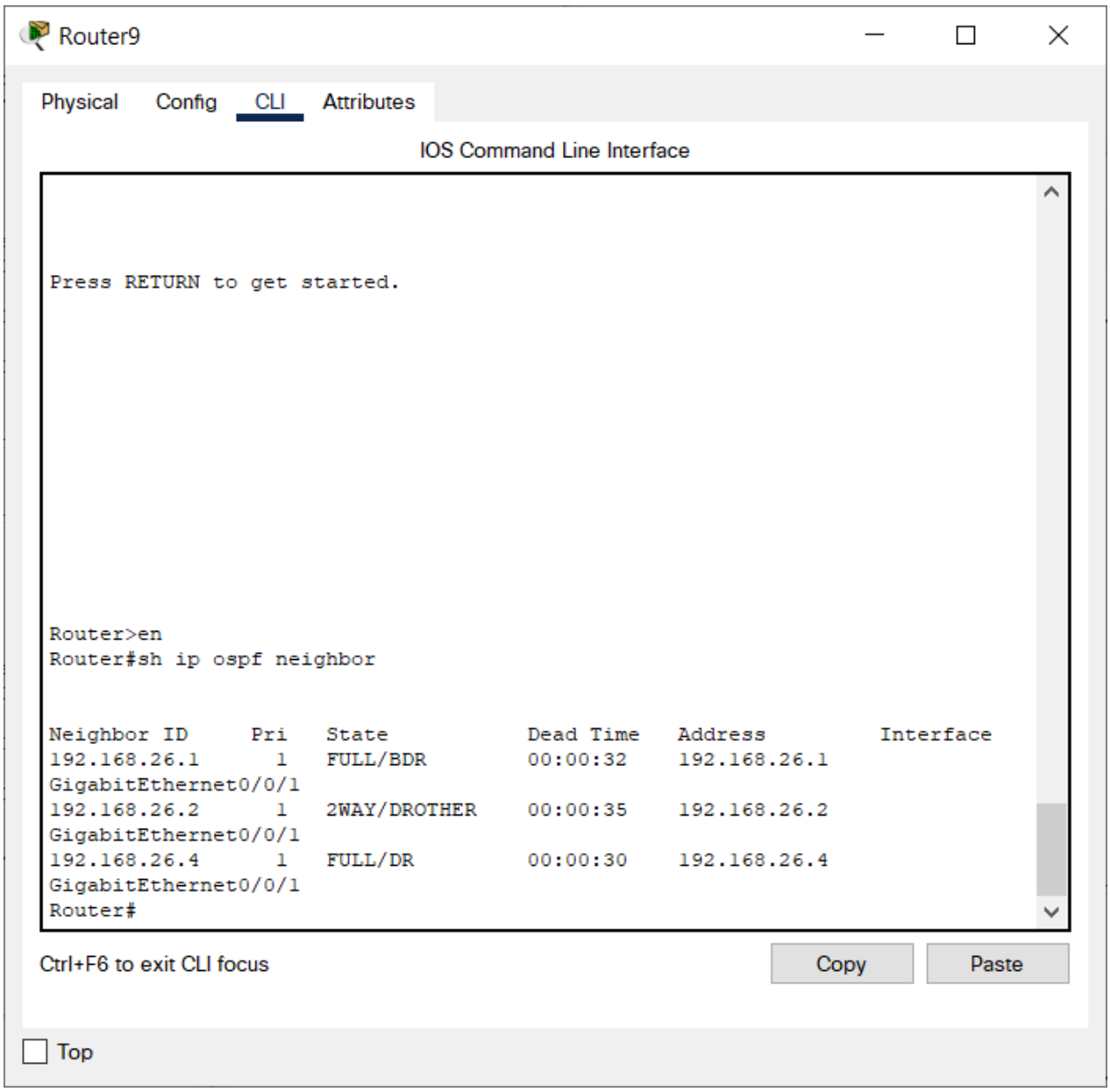




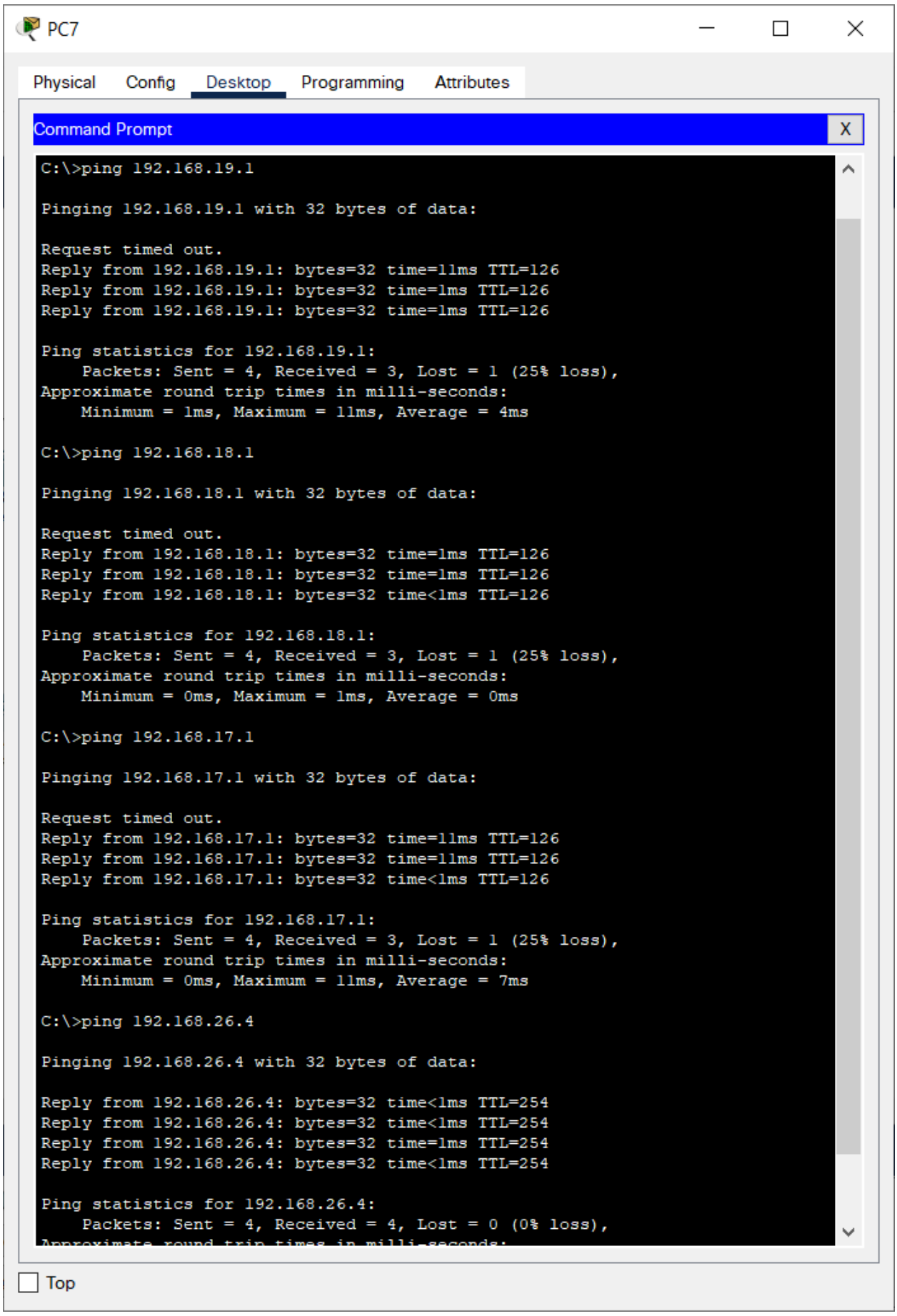


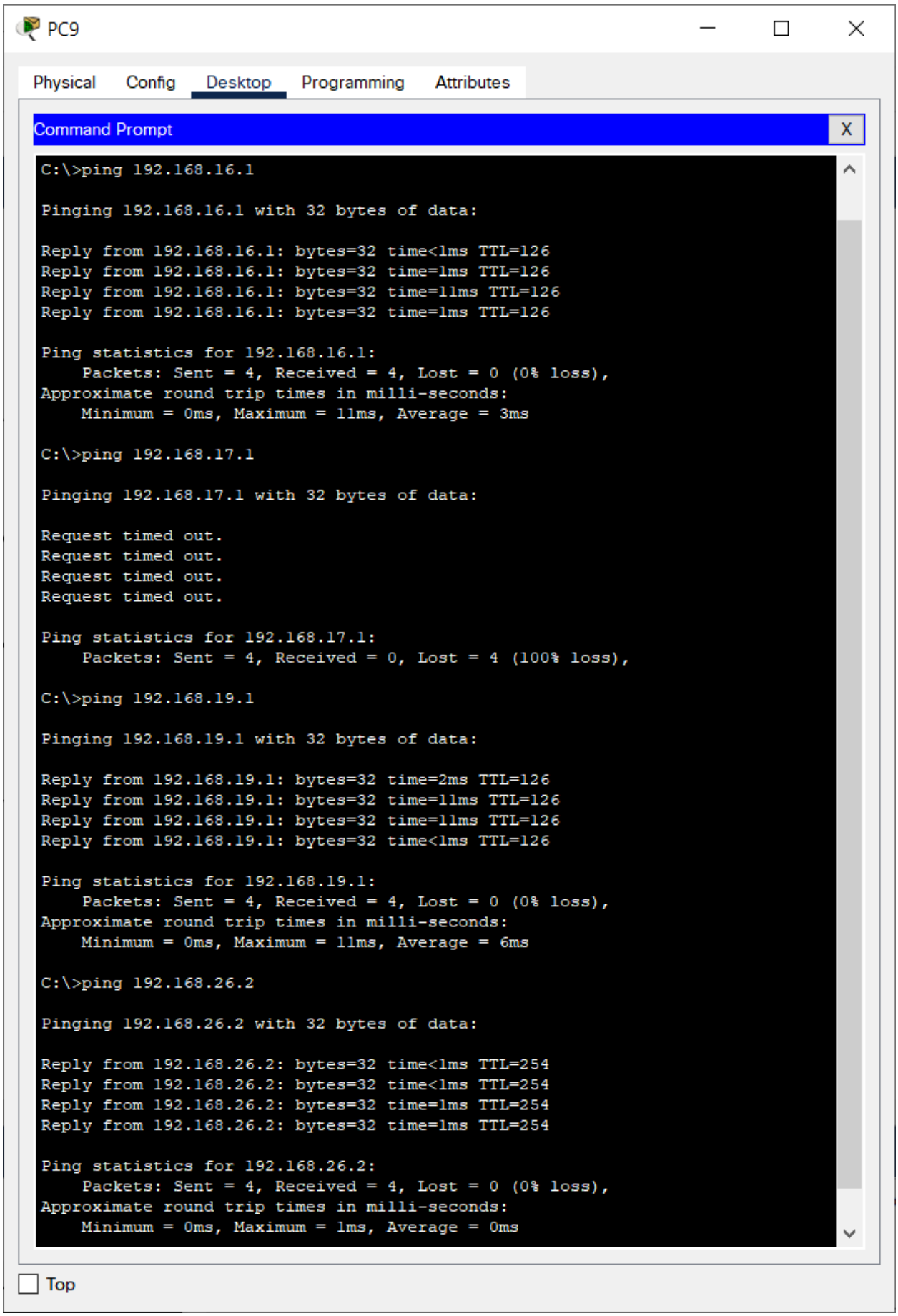


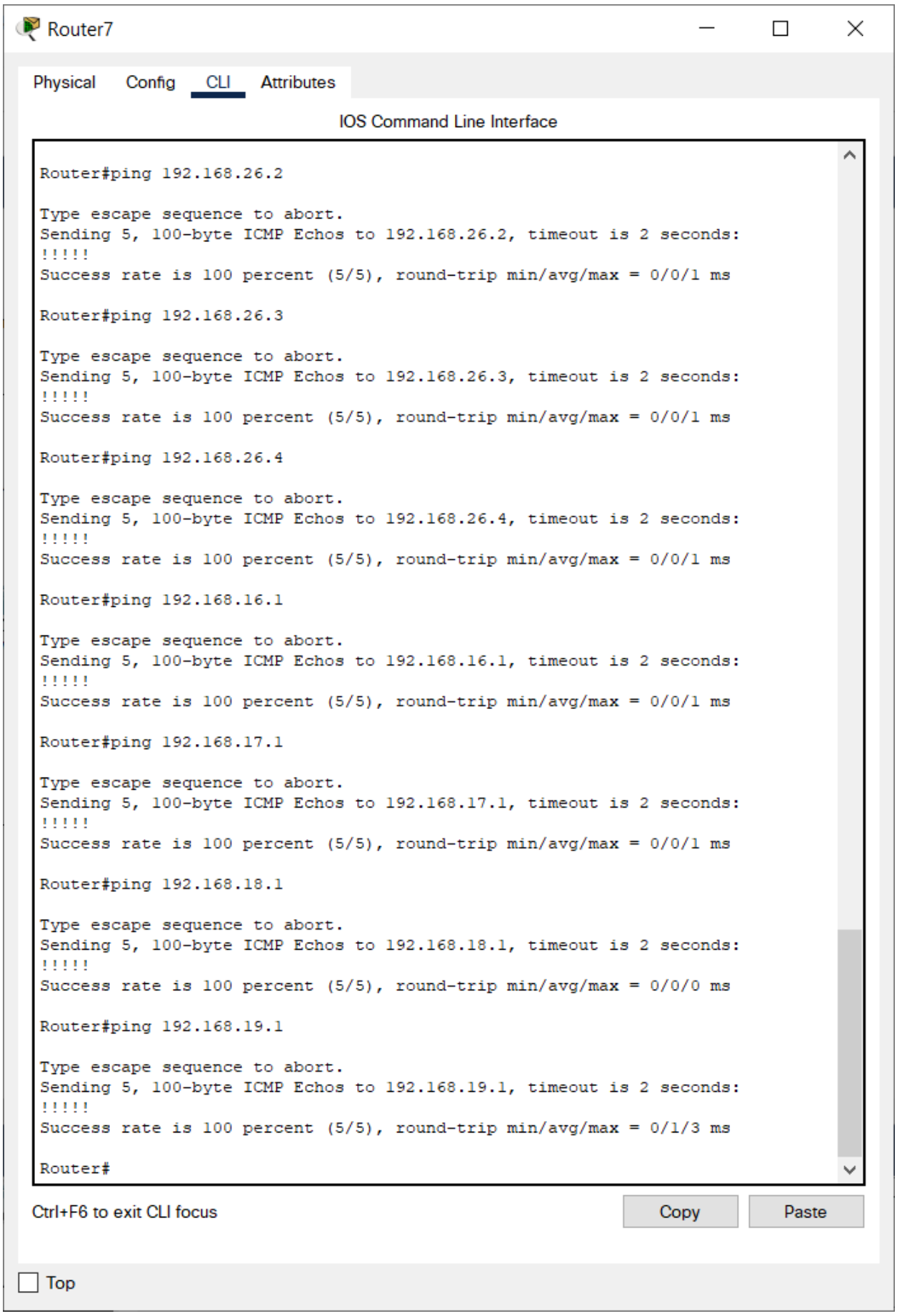
На рисунке, представленном ниже, видно, что роль DR получил Router10, BDR – Router7. Роль ABR получили все маршрутизаторы, так как каждый из них является граничным.



Проверка пингов:


PC7
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
C:\>ping 192.168.19.1
Pinging 192.168.19.1 with 32 bytes of data:
Request timed out.
Reply from 192.168.19.1: bytes=32 time=11ms TTL=126
Reply from 192.168.19.1: bytes=32 time=1ms TTL=126
Reply from 192.168.19.1: bytes=32 time=1ms TTL=126
Ping statistics for 192.168.19.1:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 11ms, Average = 4ms
C:\>ping 192.168.18.1
Pinging 192.168.18.1 with 32 bytes of data:
Request timed out.
Reply from 192.168.18.1: bytes=32 time=1ms TTL=126
Reply from 192.168.18.1: bytes=32 time=1ms TTL=126
Reply from 192.168.18.1: bytes=32 time<1ms TTL=126
Ping statistics for 192.168.18.1:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 192.168.17.1
Pinging 192.168.17.1 with 32 bytes of data:
Request timed out.
Reply from 192.168.17.1: bytes=32 time=11ms TTL=126
Reply from 192.168.17.1: bytes=32 time=11ms TTL=126
Reply from 192.168.17.1: bytes=32 time<1ms TTL=126
Ping statistics for 192.168.17.1:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 11ms, Average = 7ms
C:\>ping 192.168.26.4
Pinging 192.168.26.4 with 32 bytes of data:
Reply from 192.168.26.4: bytes=32 time<1ms TTL=254
Reply from 192.168.26.4: bytes=32 time<1ms TTL=254
Reply from 192.168.26.4: bytes=32 time=1ms TTL=254
Reply from 192.168.26.4: bytes=32 time<1ms TTL=254
Ping statistics for 192.168.26.4:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Top


PC9
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
C:\>ping 192.168.16.1
Pinging 192.168.16.1 with 32 bytes of data:
Reply from 192.168.16.1: bytes=32 time<1ms TTL=126
Reply from 192.168.16.1: bytes=32 time=1ms TTL=126
Reply from 192.168.16.1: bytes=32 time=11ms TTL=126
Reply from 192.168.16.1: bytes=32 time=1ms TTL=126
Ping statistics for 192.168.16.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 11ms, Average = 3ms
C:\>ping 192.168.17.1
Pinging 192.168.17.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.17.1:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 192.168.19.1
Pinging 192.168.19.1 with 32 bytes of data:
Reply from 192.168.19.1: bytes=32 time=2ms TTL=126
Reply from 192.168.19.1: bytes=32 time=11ms TTL=126
Reply from 192.168.19.1: bytes=32 time=11ms TTL=126
Reply from 192.168.19.1: bytes=32 time<1ms TTL=126
Ping statistics for 192.168.19.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 11ms, Average = 6ms
C:\>ping 192.168.26.2
Pinging 192.168.26.2 with 32 bytes of data:
Reply from 192.168.26.2: bytes=32 time<1ms TTL=254
Reply from 192.168.26.2: bytes=32 time<1ms TTL=254
Reply from 192.168.26.2: bytes=32 time=1ms TTL=254
Reply from 192.168.26.2: bytes=32 time=1ms TTL=254
Ping statistics for 192.168.26.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
Top


Router7
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router#ping 192.168.26.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.26.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms
Router#ping 192.168.26.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.26.3, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms
Router#ping 192.168.26.4
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.26.4, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms
Router#ping 192.168.16.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.16.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms
Router#ping 192.168.17.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.17.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms
Router#ping 192.168.18.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.18.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms
Router#ping 192.168.19.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.19.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/1/3 ms
Router#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top