Question-3

Configure static IP addresses, modify MAC addresses, and verify network connectivity using ping and ifconfig commands.

static IP (192.168.1.20) and gateway as 192.168.1.1

manoj@MyLinuxVM:~$ sudo nano /etc/netplan/01-netcfg.yaml

```
  network:
  ethernets:
   enp0s8:
    dhcp4: no
    addresses:
      - 192.168.1.20/24
    gateway4: 192.168.1.1
    nameservers:
     addresses:
       - 8.8.8.8
       - 8.8.4.4
  version: 2
```

manoj@MyLinuxVM:~$ ip route

default via 192.168.1.1 dev enp0s8 proto static metric 20101

10.0.2.0/24 dev enp0s3 proto kernel scope link src 10.0.2.15 metric 100

169.254.0.0/16 dev enp0s9 proto kernel scope link src 169.254.129.173 metric 102

169.254.0.0/16 dev enp0s3 scope link metric 1000

192.168.1.0/24 dev enp0s8 proto kernel scope link src 192.168.1.20 metric 101

224.0.0.0/4 dev enp0s9 proto static scope link metric 102

PINGING FROM LINUX TO WINDOWS   # Windows IP is 192.168.56.1

manoj@MyLinuxVM:~$ ping -c 3 192.168.56.1

PING 192.168.1.10 (192.168.1.10) 56(84) bytes of data.

64 bytes from 192.168.1.10: icmp_seq=1 ttl=128 time=1.18 ms

64 bytes from 192.168.1.10: icmp_seq=2 ttl=128 time=0.985 ms

64 bytes from 192.168.1.10: icmp_seq=3 ttl=128 time=0.887 ms

--- 192.168.1.10 ping statistics ---

3 packets transmitted, 3 received, 0% packet loss, time 6008ms

PINGING FROM WINDOWS TO LINUX: #Linux IP is 192.168.1.20

C:\Users\manoj>ping 192.168.1.20

Pinging 192.168.1.20 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=64

Reply from 192.168.1.10: bytes=32 time<1ms TTL=64

Reply from 192.168.1.10: bytes=32 time<1ms TTL=64

Reply from 192.168.1.10: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.1.20:

        Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

        Minimum = 0ms, Maximum = 0ms, Average = 0ms

MAC ADDRESS CONFIGURATION:

Static mac address: 01:12:23:34:45:56

manoj@MyLinuxVM:~$ sudo ifconfig enp0s8 hw ether 01:12:23:34:45:56

manoj@MyLinuxVM:~$ ifconfig enp0s8

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

    inet 192.168.1.20 netmask 255.255.255.0 broadcast 192.168.1.255

    inet6 fe80::a00:27ff:fe2a:c61f prefixlen 64 scopeid 0x20<link>

    ether 01:12:23:34:45:56 txqueuelen 1000 (Ethernet)

    RX packets 707 bytes 69563 (69.5 KB)

    RX errors 0 dropped 0 overruns 0 frame 0

    TX packets 1751 bytes 133855 (133.8 KB)

    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

manoj@MyLinuxVM:~$ ping -3 192.168.1.20

PING 192.168.1.20 (192.168.1.10) 56(84) bytes of data.

64 bytes from 192.168.1.20: icmp_seq=1 ttl=128 time=1.18 ms

64 bytes from 192.168.1.20: icmp_seq=2 ttl=128 time=0.985 ms

64 bytes from 192.168.1.20: icmp_seq=3 ttl=128 time=0.887 ms

--- 192.168.1.20 ping statistics ---

3 packets transmitted, 3 received, 0% packet loss, time 6008ms