ALM 2
NPS

1>

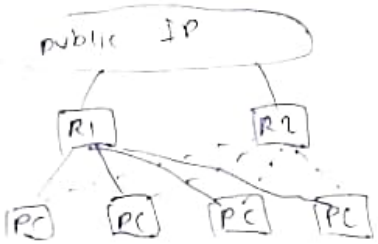
Application layer
Presentation layer
Session layer
Transport layer
Network layer
DLL
Physical layer

ARP ⇒ provides service to network layer by resolving IP address to MAC addresses

It operates assist in network layer. It is not part of network layer
It belongs to DLL since it deals with Ethernet communication

2> NAT (Network address translation)

- This case is still possible with some configuration
- NAT primarily deals with translating private IP addresses to public IP address.
- Multiple routers, multiple connection: The company has two (or more) routers, each with own connection to the internet and its own public IP address



3) ISP (Internet service provider)

granted ISP block 80.70.56.0/21

$2^{(32-21)} = 2^{11} = 2048$ IP addresses

range ⇒ (80.70.56.0 → 80.70.63.255)

4) Two organization with 500 addresses
⇒ Each need 512 (next power of 2) } prefix length $32 - \log_2 512 = 23$

Two organization with 250 addresses } $32 - \log_2 256 = 24$
⇒ Each needs 256

Three organization with 50 address } $32 - \log_2 64 = 26$
⇒ Each need 64 addresses

Org A

80.70.56.0/23 ⇒ 80.70.58.255/23 } Org A
80.70.58.0/23 ⇒ 80.70.59.255/23

80.70.60.0/24 ⇒ 80.70.60.255/24 } Org B
80.70.61.0/24 ⇒ 80.70.61.255/24

80.70.62.0/26 ⇒ 80.70.62.63/26
80.70.62.64/26 ⇒ 80.70.62.127/26
80.70.62.128/26 ⇒ 80.70.62.191/26

80.70.62.192 ⇒ 80.70.63.255 unused