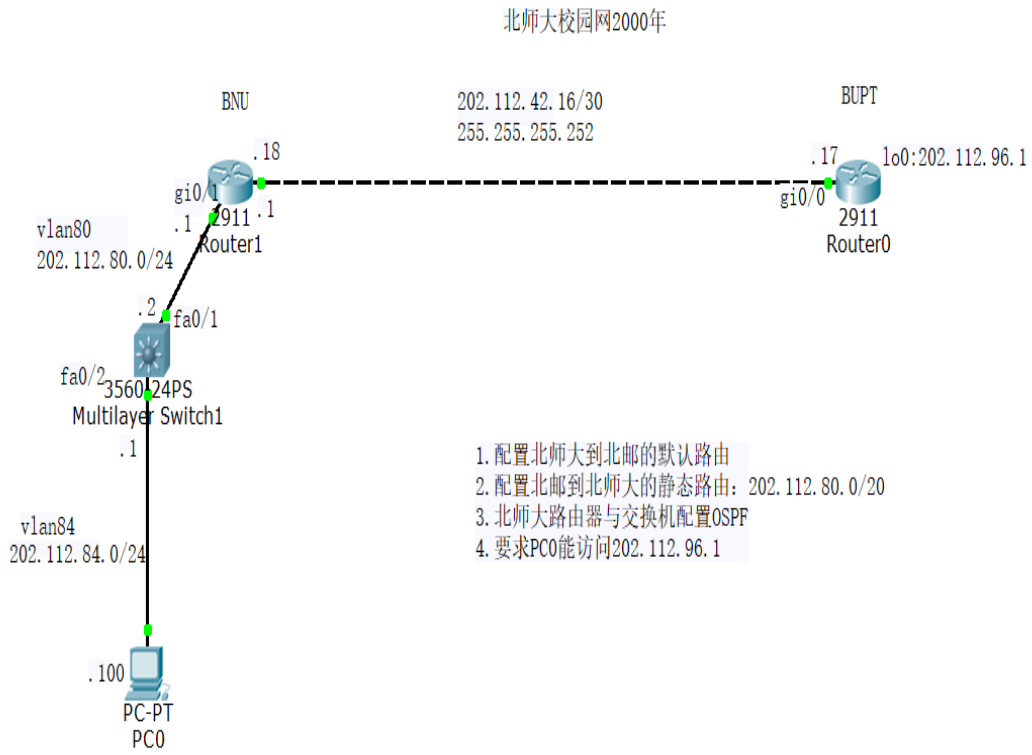
2023 期中实验（20 分）



1. 网络拓扑及 IP 编址如上图；
2. 配置北师大到北邮的默认路由
   配置北邮到北师大的静态路由：202.112.80.0/20
   北师大路由器与交换机配置 OSPF
   要求 PC0 能访问 202.112.96.1
3. 在三个设备中

Show run

Show ip route

在 PC 上：ping 202.112.96.1

将上述输出生成一个 PDF 或 WORD 文件，文件名：期中测试_学号_姓名。

配置 5 分；路由正确 10 分；测试 5 分

（BNU 路由器分数 2-4；BUPT 路由器分数 1-3；BNU 交换机分数都是 2-3；PC 测试分数 5 分）

BNU 路由器

```
BNU#show run
Building configuration...
Current configuration : 1167 bytes
!
version 15.1
no service timestamps log datetime msec
```

```
 no service timestamps debug datetime msec
 no service password-encryption
 !
hostname BNU
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
license udi pid CISCO2911/K9 sn FTX15244X55
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface GigabitEthernet0/0
 ip address 202.112.42.18 255.255.255.252
 duplex auto
 speed auto
!
interface GigabitEthernet0/1
 ip address 202.112.80.1 255.255.255.0
```

```
 duplex auto
 speed auto
!
interface GigabitEthernet0/2
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Vlan1
 no ip address
 shutdown
!
router ospf 1
 log-adjacency-changes
 redistribute static subnets
 network 202.112.80.0 0.0.0.255 area 0
 network 202.112.42.0 0.0.0.3 area 0
 network 202.112.42.0 0.0.0.255 area 0
 network 202.112.42.16 0.0.0.3 area 0
 network 202.112.96.0 0.0.0.255 area 0
 network 202.112.96.1 0.0.0.0 area 0
 network 202.112.96.0 0.0.0.0 area 0
 default-information originate
!
ip classless
ip route 0.0.0.0 0.0.0.0 GigabitEthernet0/0
ip route 0.0.0.0 0.0.0.0 202.112.42.17
!
ip flow-export version 9
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
```

```
!
!
end
```

```
BNU#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

    202.112.42.0/24 is variably subnetted, 2 subnets, 2 masks
C       202.112.42.16/30 is directly connected, GigabitEthernet0/0
L       202.112.42.18/32 is directly connected, GigabitEthernet0/0
    202.112.80.0/24 is variably subnetted, 2 subnets, 2 masks
C       202.112.80.0/24 is directly connected, GigabitEthernet0/1
L       202.112.80.1/32 is directly connected, GigabitEthernet0/1
O    202.112.84.0/24 [110/2] via 202.112.80.2, 01:06:50, GigabitEthernet0/1
S*   0.0.0.0/0 is directly connected, GigabitEthernet0/0
                [1/0] via 202.112.42.17
```

BUPT 路由器

```
BUPT#show run
Building configuration...

Current configuration : 868 bytes
!
version 15.1
```

```
 no service timestamps log datetime msec
 no service timestamps debug datetime msec
 no service password-encryption
!
hostname BUPT
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
license udi pid CISCO2911/K9 sn FTX1524M41E
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface Loopback0
 ip address 202.112.96.1 255.255.255.255
!
interface GigabitEthernet0/0
 ip address 202.112.42.17 255.255.255.252
 duplex auto
```

```
 speed auto
!
interface GigabitEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface GigabitEthernet0/2
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
ip route 202.112.80.0 255.255.255.0 202.112.42.18
ip route 202.112.80.0 255.255.240.0 202.112.42.18
!
ip flow-export version 9
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

```
 BUPT#sh ip route
```

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     202.112.42.0/24 is variably subnetted, 2 subnets, 2 masks
C       202.112.42.16/30 is directly connected, GigabitEthernet0/0
L       202.112.42.17/32 is directly connected, GigabitEthernet0/0
S    202.112.80.0/20 [1/0] via 202.112.42.18
S    202.112.80.0/24 [1/0] via 202.112.42.18
     202.112.96.0/32 is subnetted, 1 subnets
C       202.112.96.1/32 is directly connected, Loopback0
```

BNU 交换机

```
Switch#show run
Building configuration...

Current configuration : 1544 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch
!
!
!
!
!
```

```
!
!
ip routing
!
!
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree vlan 1-500 priority 24576
!
!
!
!
!
!
interface FastEthernet0/1
 switchport access vlan 80
 switchport mode access
!
interface FastEthernet0/2
 switchport access vlan 84
 switchport mode access
!
interface FastEthernet0/3
!
interface FastEthernet0/4
!
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
```

```
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
 no ip address
 shutdown
!
interface Vlan80
 ip address 202.112.80.2 255.255.255.0
!
```

```
interface Vlan84
 ip address 202.112.84.1 255.255.255.0
!
router ospf 1
 log-adjacency-changes
 network 202.112.80.0 0.0.0.255 area 0
 network 202.112.84.0 0.0.0.255 area 0
 default-information originate
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

```
Switch#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile,
   B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter
   area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external ty
   pe 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E -
   EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-
   2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route
```

```
9.
10.Gateway of last resort is 202.112.80.1 to network 0.0.0.0
11.
12.     202.112.42.0/30 is subnetted, 1 subnets
13.O       202.112.42.16 [110/2] via 202.112.80.1, 02:12:53, Vlan80
14.C    202.112.80.0/24 is directly connected, Vlan80
15.C    202.112.84.0/24 is directly connected, Vlan84
16.O*E2 0.0.0.0/0 [110/1] via 202.112.80.1, 01:59:20, Vlan80
```

PC 测试