



### **3º Avaliação de Redes de Computadores I**

#### **1º Questão.**

Para realizar o envio de pacotes entre o Host1 10.0.0.5 ao Host2 50.0.0.5 seguindo a topologia fornecida pela questão, realiza-se as seguintes etapas.

Das configurações dos componentes:

#### **PCs:**

Para realização dos seguintes passos, abra(clique) o respectivo componente(PC), depois na seção “Desktop”, localizada na região superior, em seguida clique na opção “IP Configuration”.

Por fim, coloque as informações de acordo com as imagens.

Componente PC0(Host 10.0.0.5) -

<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	10.0.0.5
Subnet Mask	255.0.0.0
Default Gateway	10.0.0.1
DNS Server	0.0.0.0

Componente PC1(Host 50.0.0.5) -

<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	50.0.0.5
Subnet Mask	255.0.0.0
Default Gateway	50.0.0.1
DNS Server	0.0.0.0

**Continuação da 1º Questão abaixo.**

### Roteadores:

Para realização dos seguintes passos, abra(clique) o respectivo componente(Router), depois na seção “Config”, localizada na região superior, em seguida clique na respectiva interface na opção “**INTERFACE**”. Por fim, coloque as informações de acordo com as imagens.

Lembrando de marcar a caixinha “**On**”, localizada na parte superior direita.

Roteador 1(Router0):

Interface GigabitEthernet0/0/0:

IP Configuration	
IPv4 Address	10.0.0.1
Subnet Mask	255.0.0.0

Interface GigabitEthernet0/0/1:

IP Configuration	
IPv4 Address	20.0.0.1
Subnet Mask	255.0.0.0

Roteador 2(Router1):

Interface GigabitEthernet0/0/0:

IP Configuration	
IPv4 Address	20.0.0.2
Subnet Mask	255.0.0.0

Interface GigabitEthernet0/0/1:

IP Configuration	
IPv4 Address	30.0.0.1
Subnet Mask	255.0.0.0

Roteador 3(Router2):

Interface GigabitEthernet0/0/0:

IP Configuration	
IPv4 Address	30.0.0.2
Subnet Mask	255.0.0.0

Interface GigabitEthernet0/0/1:

IP Configuration	
IPv4 Address	40.0.0.1
Subnet Mask	255.0.0.0

**Continuação da 1ª Questão abaixo.**

Roteador 4(Router3):

Interface GigabitEthernet0/0/0:

IP Configuration	
IPv4 Address	40.0.0.2
Subnet Mask	255.0.0.0

Interface GigabitEthernet0/0/1:

IP Configuration	
IPv4 Address	50.0.0.1
Subnet Mask	255.0.0.0

### Switches:

Para realização dos seguintes passos, abra(clique) o respectivo componente(Switch), depois na seção “Config”, localizada na região superior, em seguida clique na respectiva interface na opção “**INTERFACE**”. Por fim, coloque as informações de acordo com as imagens.

Switch0:

Interface FastEthernet0/1:

The screenshot shows the configuration window for Switch0, specifically for the FastEthernet0/1 interface. The window has tabs for Physical, Config, CLI, and Attributes. The Config tab is active. On the left, there is a sidebar with a tree view containing GLOBAL, Settings, Algorithm Settings, SWITCHING, VLAN Database, INTERFACE, FastEthernet0/1, and FastEthernet0/2. The INTERFACE section is expanded, showing FastEthernet0/1 and FastEthernet0/2. The main area displays the configuration for FastEthernet0/1. It includes a Port Status section with a checkbox for 'On' (checked). Below it, there are radio buttons for '100 Mbps' (selected) and '10 Mbps', and checkboxes for 'Auto' (checked). There are also radio buttons for 'Half Duplex' and 'Full Duplex' (selected), and checkboxes for 'Auto' (checked). A 'Trunk' dropdown menu is set to 'Trunk'. A 'VLAN' dropdown menu is set to '1-1005'. A 'Tx Ring Limit' field is set to '10'.

Interface FastEthernet0/2:

The screenshot shows the configuration window for Switch0, specifically for the FastEthernet0/2 interface. The window has tabs for Physical, Config, CLI, and Attributes. The Config tab is active. On the left, there is a sidebar with a tree view containing GLOBAL, Settings, Algorithm Settings, SWITCHING, VLAN Database, INTERFACE, FastEthernet0/1, and FastEthernet0/2. The INTERFACE section is expanded, showing FastEthernet0/1 and FastEthernet0/2. The main area displays the configuration for FastEthernet0/2. It includes a Port Status section with a checkbox for 'On' (checked). Below it, there are radio buttons for '100 Mbps' (selected) and '10 Mbps', and checkboxes for 'Auto' (checked). There are also radio buttons for 'Half Duplex' and 'Full Duplex' (selected), and checkboxes for 'Auto' (checked). A 'Trunk' dropdown menu is set to 'Trunk'. A 'VLAN' dropdown menu is set to '1-1005'. A 'Tx Ring Limit' field is set to '10'.

**Continuação da 1ª Questão abaixo.**

Switch1:

Interface FastEthernet0/1:

The screenshot shows the configuration window for Switch1, specifically for the FastEthernet0/1 interface. The window has tabs for Physical, Config, CLI, and Attributes. The Config tab is active. On the left, there is a tree view with categories: GLOBAL (Settings, Algorithm Settings), SWITCHING (VLAN Database), and INTERFACE (FastEthernet0/1, FastEthernet0/2). The FastEthernet0/1 interface is selected. The main area shows the following settings: Port Status is checked and set to On; Bandwidth is set to 100 Mbps (selected), 10 Mbps, and Auto (checked); Duplex is set to Half Duplex, Full Duplex (selected), and Auto (checked); Trunk is set to Trunk; VLAN is set to 1-1005; and Tx Ring Limit is set to 10.

Interface FastEthernet0/2:

The screenshot shows the configuration window for Switch1, specifically for the FastEthernet0/2 interface. The window has tabs for Physical, Config, CLI, and Attributes. The Config tab is active. On the left, there is a tree view with categories: GLOBAL (Settings, Algorithm Settings), SWITCHING (VLAN Database), and INTERFACE (FastEthernet0/1, FastEthernet0/2). The FastEthernet0/2 interface is selected. The main area shows the following settings: Port Status is checked and set to On; Bandwidth is set to 100 Mbps (selected), 10 Mbps, and Auto (checked); Duplex is set to Half Duplex, Full Duplex (selected), and Auto (checked); Trunk is set to Trunk; VLAN is set to 1-1005; and Tx Ring Limit is set to 10.

Do Roteamento Estático:

Para realização dos seguintes passos, abra(cliqe) o respectivo componente(Router), depois na seção “Config”, localizada na região superior, em seguida clique em “Static” na opção “**ROUTING**”. Por fim, adicione na secção “Static Routes” as informações de acordo com as imagens.

Roteador 1(Router0):

The screenshot shows the configuration window for Router0, specifically for the Static Routes section. The window has a tab for Network Address. The main area shows the following static routes: 30.0.0.0/8 via 20.0.0.2, 40.0.0.0/8 via 20.0.0.2, and 50.0.0.0/8 via 20.0.0.2. The last route is highlighted with a blue border.

**Continuação da 1ª Questão abaixo.**

Roteador 2(Router1):

Network Address
40.0.0.0/8 via 30.0.0.2
50.0.0.0/8 via 30.0.0.2
10.0.0.0/8 via 20.0.0.1

Roteador 3(Router2):

Network Address
20.0.0.0/8 via 30.0.0.1
10.0.0.0/8 via 30.0.0.1
50.0.0.0/8 via 40.0.0.2

Roteador 4(Router3):

Network Address
10.0.0.0/8 via 40.0.0.1
20.0.0.0/8 via 40.0.0.1
30.0.0.0/8 via 40.0.0.1

Desta forma, será possível que o PC0(Host 10.0.0.5) envie pacotes passando pelos roteadores para o PC1(Host 50.0.0.5).

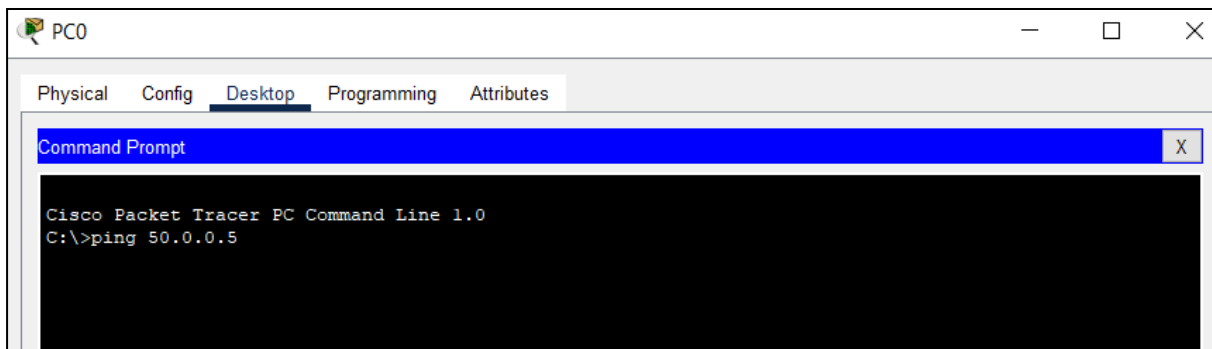
## 2º Questão.

Para visualizar as rotas presentes na topologia fornecida pela questão utilizando o comando “tracert” siga os passos abaixo:

Clique em algum componente do tipo PC, em seguida clique na opção “**Desktop**”, localizada na região superior. Logo após clique em “**Command Prompt**”, essa opção irá abrir um terminal.

Agora, antes de usar o comando “tracert”, primeiro escolha um destino(IP) que deseja ver o roteamento, seja um roteador ou um PC. Escolhido um destino, digite no terminal “tracert ip\_de\_destino”, siga o exemplo abaixo:

Para este exemplo, será feito do PC0(Host 10.0.0.5) para o destino PC1(Host 50.0.0.5).



Após apertar a tecla “ENTER”, o comando será executado e logo em seguida irá mostrar o caminho realizado para chegar ao destino. Veja o caminho usado no exemplo acima.

```
C:\>tracert 50.0.0.5

Tracing route to 50.0.0.5 over a maximum of 30 hops:

  1  0 ms    0 ms    0 ms    10.0.0.1
  2  0 ms    0 ms    0 ms    20.0.0.2
  3  0 ms    0 ms    0 ms    30.0.0.2
  4  0 ms    3 ms    0 ms    40.0.0.2
  5  0 ms    0 ms    0 ms    50.0.0.5

Trace complete.
```

### **3º Questão.**

Para configurar um roteador que realiza o NAT seguindo a topologia fornecida pela questão, siga os passos abaixo:

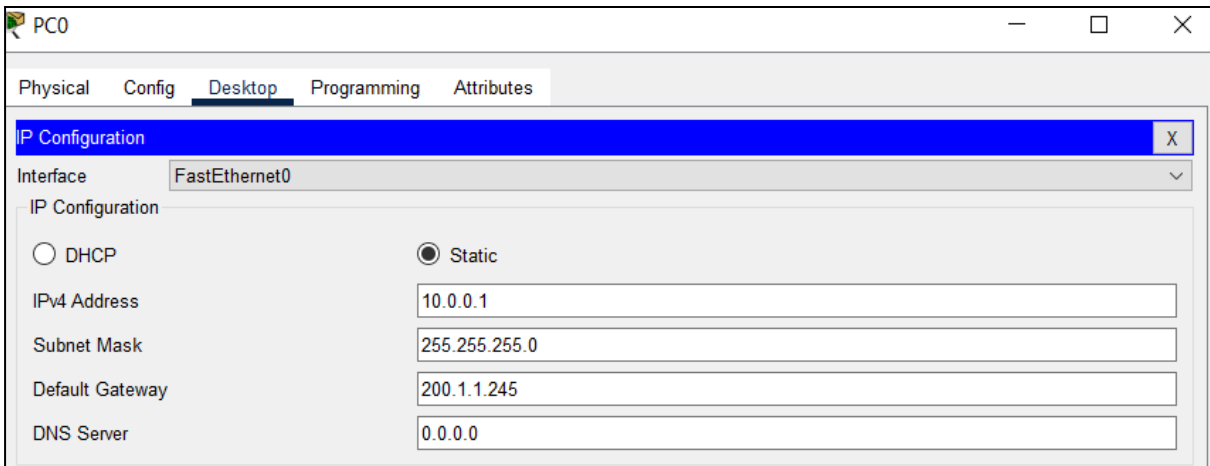
Das configurações dos componentes:

PCs:

Para realização dos seguintes passos, abra(clique) o respectivo componente(PC), depois na seção “Desktop”, localizada na região superior, em seguida clique na opção “IP Configuration”.

Por fim, coloque as informações de acordo com as imagens.

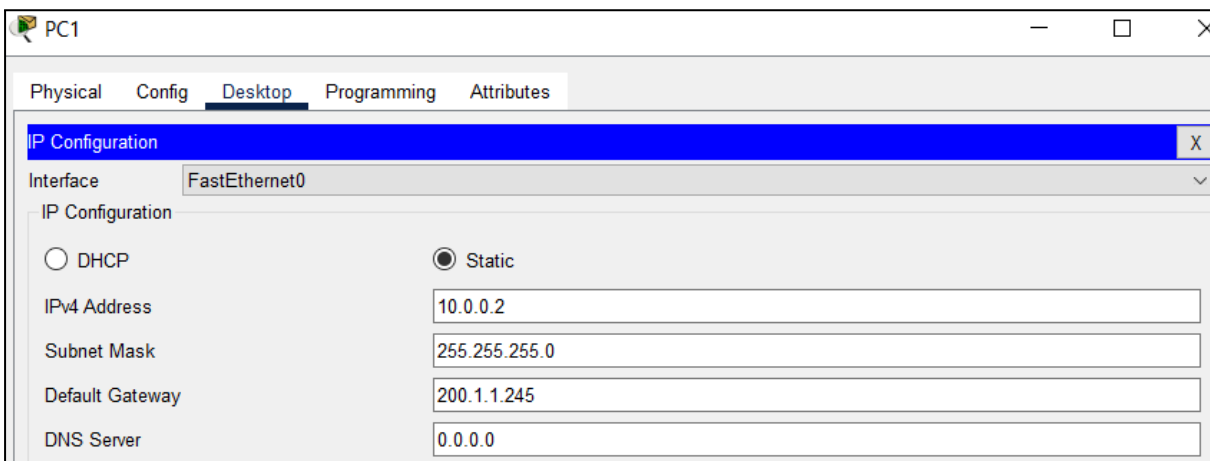
PC0(10.0.0.1):



The screenshot shows the configuration window for PC0. The 'Desktop' tab is selected, and the 'IP Configuration' section is expanded. The interface is 'FastEthernet0'. The configuration is set to 'Static'. The fields are filled with the following values:

Field	Value
IPv4 Address	10.0.0.1
Subnet Mask	255.255.255.0
Default Gateway	200.1.1.245
DNS Server	0.0.0.0

PC1(10.0.0.2):



The screenshot shows the configuration window for PC1. The 'Desktop' tab is selected, and the 'IP Configuration' section is expanded. The interface is 'FastEthernet0'. The configuration is set to 'Static'. The fields are filled with the following values:

Field	Value
IPv4 Address	10.0.0.2
Subnet Mask	255.255.255.0
Default Gateway	200.1.1.245
DNS Server	0.0.0.0

**Continuação da 3º Questão abaixo.**

PC2(10.0.0.3):

The screenshot shows the 'PC2' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing the 'FastEthernet0' interface. The 'Static' radio button is selected. The fields are filled with: IPv4 Address: 10.0.0.3, Subnet Mask: 255.255.255.0, Default Gateway: 200.1.1.245, and DNS Server: 0.0.0.0.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	10.0.0.3
Subnet Mask	255.255.255.0
Default Gateway	200.1.1.245
DNS Server	0.0.0.0

PC3 ou PC Server(200.1.1.2):

The screenshot shows the 'PC3' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing the 'FastEthernet0' interface. The 'Static' radio button is selected. The fields are filled with: IPv4 Address: 200.1.1.2, Subnet Mask: 255.255.255.0, Default Gateway: 200.1.1.245, and DNS Server: 0.0.0.0.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	200.1.1.2
Subnet Mask	255.255.255.0
Default Gateway	200.1.1.245
DNS Server	0.0.0.0

Roteador:

Router0:

Para realização dos seguintes passos, abra(clique) o respectivo componente(Router), depois na seção “Config”, localizada na região superior, em seguida clique na respectiva interface na opção “INTERFACE”. Por fim, coloque as informações de acordo com as imagens.

Lembrando de marcar a caixinha “On”, localizada na parte superior direita.

Interface GigabitEthernet0/0/0:

The screenshot shows the 'Router0' configuration window with the 'Config' tab selected. The 'GigabitEthernet0/0/0' interface is selected. The 'Port Status' is 'On'. The 'Bandwidth' is set to '1000 Mbps'. The 'Duplex' is set to 'Full Duplex'. The 'MAC Address' is '0009.7C93.B201'. The 'IP Configuration' section shows 'IPv4 Address' as '10.0.0.245' and 'Subnet Mask' as '255.255.255.0'. The 'Tx Ring Limit' is set to '10'.

Interface	GigabitEthernet0/0/0
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	0009.7C93.B201
IP Configuration	
IPv4 Address	10.0.0.245
Subnet Mask	255.255.255.0
Tx Ring Limit	10

**Continuação da 3ª Questão abaixo.**



## Interface GigabitEthernet0/0/1:

The screenshot shows the configuration window for Router0, specifically for the GigabitEthernet0/0/1 interface. The window has tabs for Physical, Config, CLI, and Attributes, with 'Config' selected. On the left, a sidebar lists configuration categories: GLOBAL (Settings, Algorithm Settings), ROUTING (Static, RIP), SWITCHING (VLAN Database), and INTERFACE (GigabitEthernet0/0/0, GigabitEthernet0/0/1). The main area displays the configuration for GigabitEthernet0/0/1. The Port Status is 'On'. Bandwidth is set to 100 Mbps. Duplex is set to Full Duplex. The MAC Address is 0009.7C93.B202. The IP Configuration section shows the IPv4 Address as 200.1.1.245 and the Subnet Mask as 255.255.255.0. The Tx Ring Limit is set to 10.

GigabitEthernet0/0/1	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input type="radio"/> 1000 Mbps <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	0009.7C93.B202
IP Configuration	
IPv4 Address	200.1.1.245
Subnet Mask	255.255.255.0
Tx Ring Limit	10

Seguindo os passos, é possível que os hosts da rede 10.0.0.0/24 enviem pacotes ao Server(200.1.1.2) por meio do roteador (200.1.1.254).