



INSTRUCTIONS:

- This paper comprises 7 questions
- Attempt all questions

TCP/IP Programming Theory / 30 marks

Question 1/ 12 marks

The codes below print the full list of all network interfaces of a given host.

```
List<NetworkInterface> list1 =  
Collections.list  
(NetworkInterface.getNetworkInterfaces());  
for (int i=0; i<=list1.size(); i++)  
System.out.println (list1.get(i));
```

1. Re-write the codes with slight changes so that they print the only network interfaces which are up and running.
2. Re-write the codes with slight changes so that they print the 1st NetworkInterface in the list.
3. Re-write the codes with slight changes so that they print the index of the 1st NetworkInterface in the list.
4. Re-write the codes with slight changes so that they print the same full list of network interfaces but as enumeration.

Question 2 / 4 marks

The codes below print the list of all network interfaces of a host machine.

```
List<NetworkInterface> list1 = Collections.list  
(NetworkInterface.getNetworkInterfaces());  
for (int i=0; i<=list1.size(); i++)  
System.out.println (list1.get(i));
```

Re-write the codes so that they print the same network interfaces as enumeration (not as a list).

Question 3 / 4 marks

The codes below print the IP v4 as well as the IP v6 attached to the NetworkInterface "iface". Re-write them and make minimum changes so that they print the IP v6 alone.

```
Enumeration<NetworkInterface> iface;  
iface = NetworkInterface.getInetAddresses();  
while (iface.hasMoreElements())  
{  
InetAddress inet = iface.nextElement();  
System.out.println (inet); }
```

Question 4 / 4 marks

What is the output of the codes below? Explain.

```
byte [] add = {(byte)192, (byte)168, 100, 100}  
System.out.println (InetAddress.getByAddress  
(add).getHostAddress());
```

Question 5 / 2 marks

The codes below, are supposed to print all IP addresses attached to "yahoo.com". What is wrong with the first line?

```
InetAddress ip = InetAddress.getAllByName  
("yahoo.com");  
for (int i = 0; i<ip.length; i++)  
System.out.println (ip[i]);
```

Question 6 / 2 marks

What is the output of the codes below?

```
InetAddress inet = InetAddress.getByName("");  
System.out.println (inet);
```

Question 7/ 2 marks

What is the output of the codes below?

```
byte [] add1 = {(byte)169,(byte)254,(byte)175,100};  
for (int i=100; i<=105;i++)  
{add1[3]= (byte)i;  
System.out.println(InetAddress.getByAddress (add1));}
```

<<Best of Luck>>