



PROGRAMMING IN JAVA

Assignment 10

TYPE OF QUESTION: MCQ

Number of questions: 10

Total marks: $10 \times 1 = 10$

QUESTION 1:

What will be the output of the following Java program?

```
import java.net.*;
public class NPTEL {
    public static void main(String[] args) {
        try {
            URI uri = new URI("https://nptel.ac.in/");
            URL url = uri.toURL();
            System.out.println("Protocol: " + url.getProtocol());
            System.out.println("Host Name: " + url.getHost());
            System.out.println("Port Number: " + url.getPort());
        } catch (Exception e) {
            System.out.println(e);
        }
    }
}
```

- a. Protocol: https
- b. Host Name: nptel.ac.in
- c. Port Number: -1
- d. All of the mentioned

Correct Answer:

d. All of the mentioned

Detailed Solution:



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`getProtocol()` give **protocol** which is `https`. `getUrl()` give name **domain name** which is `npTEL.ac.in`. `getPort()` Since the **port has not been explicitly set**, **default value that is -1** is printed.
Output:

```
Protocol: https
Host Name: npTEL.ac.in
Port Number: -1
```



QUESTION 2:

What will be the output of the following Java program?

```
import java.net.*;
class NPTEL {
    public static void main(String[] args) throws UnknownHostException {
        InetAddress obj1 = InetAddress.getByName("npTEL.ac.in");
        System.out.print(obj1.getHostName());
    }
}
```

- a. npTEL
- b. npTEL.ac.in**
- c. www.npTEL.ac.in
- d. None of the mentioned

Correct Answer:

- b. npTEL.ac.in**

Detailed Solution:

The host name is npTEL.ac.in. It is printed when `getHostName()` is called.



QUESTION 3:

Which class provides methods to work with URLs?

- a. URLConnection
- b. HttpURL
- c. NetURL
- d. URL

Correct Answer:

- d. URL

Detailed Solution:

The `URL` class provides methods to work with Uniform Resource Locators.



QUESTION 4:

Which exception is thrown when a connection cannot be established with a remote server?

- a. IOException
- b. **UnknownHostException**
- c. ConnectionException
- d. NetworkException

Correct Answer:

- b. **UnknownHostException**

Detailed Solution:

`UnknownHostException` is thrown if **no IP address for the host could be found**, or if a `scope_id` was specified for a **global IPv6 address**.



QUESTION 5:

Which class provides methods to create a client-side socket in Java?

- a. ServerSocket
- b. NetSocket
- c. **Socket**
- d. ClientSocket

Correct Answer:

- c. **Socket**

Detailed Solution:

The `Socket` class in the `java.net` package is used to create client-side sockets.



QUESTION 6:

Which of the following statement is TRUE?

- a. With stream sockets there is no need to establish any connection and data flows between the processes are as continuous streams.
- b. Stream sockets are said to provide a connection-less service and UDP protocol is used
- c. Datagram sockets are said to provide a connection-oriented service and TCP protocol is used
- d. With datagram sockets there is no need to establish any connection and data flows between the processes are as packets. TRUE!!

Correct Answer:

- d. With datagram sockets there is no need to establish any connection and data flows between the processes are as packets.

Detailed Solution:

The datagram sockets allow communication without establishing any connection.



QUESTION 7:

The server listens for a connection request from a client using which of the following statement?

- a. `Socket s = new Socket(ServerName, port);`
- b. `Socket s = serverSocket.accept()`
- c. `Socket s = serverSocket.getSocket()`
- d. `Socket s = new Socket(ServerName);`

Correct Answer:

- b. `Socket s = serverSocket.accept()`

Detailed Solution:

In server-client communication using sockets, the server typically listens for incoming connection requests from clients. When a client attempts to connect to the server, the server must accept this connection request to establish a connection.

The `serverSocket.accept()` method is used by the server to listen for and accept incoming connection requests from clients. When a client attempts to connect, `serverSocket.accept()` blocks until a connection is made, and then it returns a new `Socket` object representing the connection between the server and the client.



QUESTION 8:

Which of the following is/are application layer protocol(s)?

- a. TCP
- b. UDP
- c. ARP
- d. SMTP

Correct Answer:

- d. SMTPv

Detailed Solution:

Application layer protocols are protocols that operate at the highest layer of the OSI model and are used for specific types of data communication tasks performed between programs running on different devices. They include protocols such as HTTP, FTP, SMTP, POP3, etc.

TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) are transport layer protocols.

ARP (Address Resolution Protocol) operates at the data link layer.

TCP, UDP are transport layer protocols. ARP is a Network - IP layer protocol. SMTP is Application layer protocol.



QUESTION 9:

In the following URL, identify the Resource name?

<https://nptel.ac.in>

- a. https
- b. nptel.ac.in
- c. ac.in
- d. nptel

Correct Answer:

- b. nptel.ac.in

Detailed Solution:

Resource name is nptel.ac.in. In the URL <https://nptel.ac.in>, the resource name typically refers to the domain name or hostname, which in this case is nptel.ac.in. This portion of the URL identifies the specific server or resource location on the internet.

QUESTION 10:

What does this Java code snippet do?

```
import java.net.*;

public class NPTEL {
    public static void main(String[] args) {
        try {
            InetAddress address = InetAddress.getByName("nptel.ac.in");
            System.out.println("Host Name: " + address.getHostName());
            System.out.println("IP Address: " + address.getHostAddress());
        } catch (Exception e) {
            System.out.println(e);
        }
    }
}
```

- a. Just prints the IP address of the local machine
- b. Prints the IP address and host name of the local machine
- c. Prints the IP address and host name of "nptel.ac.in"
- d. Just prints the IP address of "nptel.ac.in"

Correct Answer:

- c. Prints the IP address and host name of "nptel.ac.in"

Detailed Solution:

The code snippet retrieves and prints the IP address and host name of the specified domain "nptel.ac.in".

Output:

```
Host Name: nptel.ac.in
IP Address: 216.239.34.21
```