

**CN 2023**  
**Computer Networks Lab Assignment 2 (Graded)**

**Max marks: 20**

**Deadline: 23.01.2023**

**Read the Instructions before Performing Tasks:**

- ◆ Please submit original work. Plagiarism/copying of any form, will deduct the mark.
  - ◆ Submit all documents in google classroom.
  - ◆ Save all submission files into a single folder and submit the compressed folder.
  - ◆ Must follow the following naming convention:
  - ◆ Name the ZIP file submission as,  
    ➔ **Yourname\_Rollnumber\_Assignmentnumber.zip**
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**Q 1: Execute the following questions by using the linux terminal [15 marks]**

a) Use the Ping command for sending 20 packets to 'www.iirpr.ac.in'. Calculate the following :

**[2 marks]**

    i) Calculate the maximum, minimum and average round-trip time (RTT).

    ii) Change the ping packet size from 20 to 500 and again compute RTT.

b) Use ifconfig command and solve the following questions:

**[2 marks]**

    i) Find out the IP address assigned to the network interface (if any).

    ii) What is the IP address assigned to the loopback interface?

c) **'curl'** is a tool to transfer data from or to a server, without user interaction. **'curl'** offers a variety of useful tricks like proxy support, user authentication, FTP upload, HTTP post, SSL connections, cookies, file transfer resume, Metalink, and more.

Write a shell script to separate your IP address from everything else returned by the curl command over checkip.dyndns.org

**[4 marks]**

d) Find out the MAC address of your network gateway. What is the size of MAC address in bytes?

**[2 marks]**

e) Find out and understand the contents of kernel IP routing table (use at least two different commands)

**[2 marks]**

f) Display all active TCP connections and the TCP and UDP ports on which your computer is currently listening.

**[1 marks]**

g) What is special about IP address 127.0.0.1 and 192.168.1.1?

[1 marks]

For this question you have to submit a file with name **ass\_2\_ques\_1.txt**

**Q 2:** Jack is a student of IIT Kharagpur and visits IIT Ropar for the summer internship. He wants to see how the IIT ROPAR website is behaving using **wireshark**. However, his network administrator won't allow using the HTTP filter in **wireshark**. So your task is to help him. How will you help him to open the IIT ROPAR website using **wireshark**? [4 marks]

i. open wire shark and then browse the iit ropar official website let wireshark capture packets for 1 minute or so then stop capturing packets apply filter so that **wireshark** only shows packets that are from either sent to iit ropar website or received from iit ropar website and apply another filter so that it shows packets from http protocol only (port : 80).

{Note : try filtering with IP}

ii. After applying the above filter try to find a captured packet such that its information says that "Seq=1 and Ack=1" open that packet properties and write a brief report of what you have observed from the statistics and write down all the filters that you have used in the previous question.

For this question you have to submit a text file with name **ass\_2\_ques\_2.txt**

**Q 3:** Jack is trying to login to site

[2 marks]

[http://gaia.cs.umass.edu/wireshark-labs/protected\\_pages/HTTP-wireshark-file5.html](http://gaia.cs.umass.edu/wireshark-labs/protected_pages/HTTP-wireshark-file5.html)

With the credentials :

Username: wireshark-students

Password : secure

Assume yourself as a system administrator. Your job is to capture this transmission in **wireshark** and try to see whether Jack is using the right credentials or not. If his usage credentials are not appropriate then what will be the responsibility of the server?

For this question you have a submit a text file with a header which says **Unauthorized** with "**Response Phrase : unauthorized**".

For this question you have to submit a text file name **ass\_2\_ques\_3.txt**