Important Notes

➢ Answers to exercises must be submitted in typed form. Submitting a photo of the manuscript is not acceptable.

➢ Answers to questions should be short and written by you. Avoid writing answers that you are not sure of them. Negative marks will be given for incorrect parts of the answer.

➢ For each day of delay in submitting, 20% of the exercise grade will be deducted. After 5 days, no grade will be awarded for the exercise.

➢ If you have any questions about the exercises, you can ask them in the Telegram group.

➢ If cheating is observed, action will be taken in accordance with educational rules.

➢ The output of the exercise must be a pdf file, with name *ACN-HW#-Name-STID.pdf* like this one *ACN-HW1-RezaMohammadi-40200123.pdf*. Please name the rest of the items same manner and send it along with pdf file.

Question 1. Network Layers

What are the five layers in the Internet protocol stack? What are the principal responsibilities of each of these layers?

Question 2. TCP or UDP

Suppose you wanted to do a Banking transaction from a remote client to a server as fast as possible. Would you use UDP or TCP? Why?

Question 3. Protocols

Why do HTTP, SMTP, and IMAP run on top of TCP rather than on UDP?

Question 4. Personal Website

Make a small personal web site for yourself with HTML and CSS.

Web site must have at least 3 pages.

Each page consists of text and image.

Don't use any IDE or online tool for writing code. You can use simple tools like Notepad++ and VS Code.

Describe your work put screenshot for clarify. Put all files in a folder, zip it with question name and send it.

Question 5. Create DNS server

Create a virtual machine install Windows Server or Linux OS.

Install and config a DNS server for your domain.

Domain name must be **YourFamilyName.me** like **ahmadi.me**

Create 3 record in DNS sever:

- ahmadi.me   corresponding IP: 1.2.3.4
- blog.ahmadi.me   corresponding IP: 2.2.2.2
- dev.ahmadi.me   corresponding IP: 4.4.4.4

Use **nslookup** command and test all subdomains.

Report install process and test steps with screenshot of each step.

Question 6. HTTP Traffic analyze

Install and run Wireshark. Open http://httpforever.com in your browser.

Capture traffic and save it in HW1-wireshark.pcap.

Explain this steps and find corresponding packets in traffic add screenshot to report.

Step1: Send DNS request for httpforever.com

Step2: Get DNS Response from DNS Server

Step3: Start TCP Connection with webserver

Step4: Send HTTP GET request to the web server

Step5: Receive HTTP Response from webserver.