

# CS3093D: ASSIGNMENT 02

## Question 1

- DNS Lookup for minerva.nitc.ac.in
  - DNS server responds with A minerva.nitc.ac.in A 103.160.223.7
- TCP Handshake between 103.160.223.7
- TLS encryption setup for HTTPS
  - client sends "ClientHello"
  - Server responds with "ServerHello"
  - Server sends "Certificate, Server Key Exchange, Server Hello Done"
  - Client sends "Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message"
  - Server verifies Handshake
  - Server responds with "Change Cipher Spec, Encrypted Handshake Message"
  - Client verifies Handshake
- Application data is exchanged over TCP connection
- FIN - ACK after the transfer is complete

## Question 2

Search for the string "username" using wireshark. The packet with the username and password will be shown.

2.a

Source - **192.168.44.53**:53810

Destination - **192.168.44.1**:1000

2.b

The protocol was **HTTP**

2.c

Username: **vasudevanar**

Password: **vasu**

Magic: **179048ba09bf3146**

### Question 3

#### Packet 27

**Source Port:** 443

**Destination Port:** 59138

**Sequence Number:** 3056868986

**Acknowledgment number (raw):** 1084580465

**Data Offset:** 20

**Reserved:** 0

**URG:** 0

**ACK:** 1

**PSH:** 0

**RST:** 0

**SYN:** 0

**FIN:** 1

**Window Size:** 60

**Checksum:** 0x5442

**Urgent Pointer:** 0

#### Packet 32

**Source Port:** 59139

**Destination Port:** 443

**Sequence Number (raw):** 1660956066

**Acknowledgment number (raw):** 3861199010

**Data Offset:** 20

**Reserved:** 0

**URG:** 0

**ACK:** 1

**PSH:** 0

**RST:** 1

**SYN:** 0

**FIN:** 0

**Window Size:** 0

**Checksum:** 0xfaec

**Urgent Pointer:** 0