



STAMFORD UNIVERSITY BANGLADESH

Department of Computer Science and Engineering

Final Examination, Summer 2022 Semester

MCSE 562 : Internet Engineering and IP Technology

CT: Dr. Md Mehedi Hasan

Date and Time: 03/12/2022 and 07:30 PM - 10:00 PM

Batch: MCE-S-Mixed

Duration: 2hrs + 30 min (submission)

Platform: Online

Full Marks: 40

*(There are **FOUR** questions. Must answer All. Numbers in the right margin indicate marks.)*

1. (a) What is cybersecurity? Write down the top 10 threats in cybersecurity? [3]
- (b) What is a digital signature and how it is used? [3]
What measures should be taken to protect yourself against cyberattacks?
- (c) Suppose we have a cyclic pattern: M_1, M_2, M_3 ; M_2, M_1, M_3 ; M_3, M_2, M_1 [4]
We have a plaintext and corresponding substitution cipher as follows:

Plaintext: abcdefghijklmnopqrstuvwxyz

substitution M1: mnbvcxzasdfghjklpoiuytrewq

substitution M2: czasdfghjklpoiuytrewqmnbvcx

substitution M3: mnbvcxzasdfghjklpoiuytrewq

What is the ciphertext for: **"Tit for tat"**

2. (a) What intelligences are included in clients for DASH? What are tracker and [2]
torrents in P2P file distribution?
- (b) What is pipelining in transport layer? What are the pipelining categories? [4]
Describe them by showing control flows between sender and receiver.
- (c) Why computer firewalls are used for? [4]
What will happen if you block incoming and outgoing datagrams with IP
protocol field = 17 and with either source or dest port = 23
What policy you have to follow to prevent your network from tracerouted and
DDos attack?

3. (a) How Certification Authority (CA) binds a public key to a particular entity? [2]

- (b) What is hashing? Why they are used for? How hash function is used in cryptography? [3]
 - (c) Alice wants to send a confidential email to Bob along with her authentication. [5]
What cryptographic process do we need to follow, explain the steps?
4. (a) What are the Transport Services and Protocols? What do you mean by multiplexing and demultiplexing? [3]
- (b) What are the principles of congestion control? Briefly explain the process TCP maintain to control the congestion. [3]
 - (c) How Server and Client maintains the DASH services? In CDN which options are exists to meet the challenges. Show the flow diagram and steps of Netflix as a case study. [4]

===== GOOD LUCK =====