

# CMSC 417: Computer Networks

## Spring 2023

### In-term exam# 1

Date: February 23rd, 2023

Time and Location: In-class

Duration: 1 hour

### **Instructions:**

- 1) You should be in the class at 2 pm.
- 2) You must bring your University ID card. The proctors may not allow you to sit for the exam without your University ID card.
- 3) This is a closed book exam.
- 4) You may not discuss with other students during the exam.
- 5) You must maintain academic integrity and code of conduct.

### **Exam syllabus:**

1. Networks Overview (Chapter 1)
  - a) Basic components of a computer network (Section: 1.2.2)
  - b) Interconnection, internet, the Internet (Section: 1.2.2)
  - c) Importance and challenges of computer networks (Refer to class slides and notes)
  - d) Network architecture, abstractions, and protocol stacks/layers (Section: 1.3)
  - e) Resource sharing, Circuit switching and packet switching (Section: 1.2.3)
  - f) Network edge and network core (Refer to class slides and notes)
  - g) Access networks (Refer to class slides and notes)
  - h) Failures, delay, throughput, bandwidth (Section: 1.2.4, 1.5)
  
2. Routing Protocols (Chapter:3, Section: 3.3)
  - a) Network as a graph (Section: 3.3.1)
  - b) Distance Vector Routing (Section: 3.3.2)
  - c) Link State Routing (Section: 3.3.3)
  
3. Internet Protocol (IP) (Chapter:3, Section: 3.2)
  - a) Data plane and control plane (Refer to class slides and notes)
  - b) IP datagram format (Section: 3.2.2)
  - c) Fragmentation and reassembly (Section: 3.2.2)
  - d) IPv4 address (Section: 3.2.3)
  - e) IP datagram forwarding (Section: 3.2.4)
  - f) Subnetting (Section: 3.2.5)

Expect “problem solving” type questions on:

- a) IP fragmentation and reassembly
- b) IP addresses and Subnetting
- c) Routing protocols

Please note that exam questions will include topics discussed in response to various questions asked in the class.