COMS3200/7201 Computer Networks I

final exam checklist

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1. **Final exam**:

- Weight: worth 55% of final marks
- Scope: Covers material/content from all the lecture (including supplementary slides), tutorials and assignments.
- Exam duration: 120 minutes
- Time and place: 17/06/2019, 11:15 AM; please refer to your personalised examination timetable for venue details

I have a number of comments:

- Be there on time, ideally about 10 minutes earlier so we can have the seating sorted by the time the exam starts.
- Please do not use a pencil or a red pen.
- The final exam covers all the lectures and tutorials.
- There are no T/F questions, multi-choice questions; all the questions are short or long answer questions.
- It is important that you read the questions carefully.
- Do answer only what is asked. Explanations are only required when explicitly asked for. Otherwise do not spend time on writing explanations, this will not give marks.
- When asked "show your working" then you should expect that even when giving the correct end result you will not get full marks when I can't see how you have solved it.
- Please practice the examples (e.g., application messages, routing algorithms, error correction) I introduced during the lecture slides/supplementary lecture slides/lecture notes.

2. **A checklist for the final-exam**

- Introduction
  - Can you explain the core concepts of the terms used in computer networking?
- Application layer
  - Can you find and explain detailed information on a given application message (e.g., HTTP request/ response, DNS request/response)?
- Transport layer
  - Can you explain the differences between UDP and TCP?
  - Can you explain how to guarantee reliable delivery of application messages?
  - Can you find information (port number, direction, application protocol etc) given transport layer protocol header (TCP or UDP) dump?
  - Can you calculate checksum and verify it?
- Network layer

    - Can you explain the differences between the operation of distance vector and link state routing algorithms?
    - Given a network graph, can you make a table that contain the minimum-cost routes from a source node to all other nodes using Dijkstra's algorithm and Distance Vector algorithm (Bellman-Ford algorithm), respectively?
- Link layer
    - Can you explain how odd/even parity bit works? Can you find parity bit given binary digits? Can you explain the 2-D parity and its limitation?
    - Can you calculate/show how CRC is used to detect error(s)?
    - Can you explain why forward error correction (FEC) is used? Can you show how FEC is used to detect and/or correct error(s)?
    - Can you explain MAC address? Can you find relevant information given MAC address?
- Security
    - Can you explain the security goals?
    - Can you encrypt message using classical ciphers (e.g., Caesar cipher and rail fence cipher)?
    - Can you briefly explain security solutions such as IDS, firewalls?

3. Relevant questions in the past final-exam

The past exams are available at:
https://www.library.uq.edu.au/exams/papers.php?stub=coms3200

- 2018 final exam
    - Question 2(a), Question 4
- 2017 final exam
    - Question 1(a)
- 2016 final exam
    - Question 1(a)

Please let me know if you have any questions (dan.kim@uq.edu.au)

Best regards,

Dan