Tips for examinations

220 exam papers = 40cm of reading
  Caveat: Booklets aren’t filled or typed
Mark in slightly less than one week
  + other commitments
On average, your paper will be in the middle
& 100+ exam papers (2 courses) all trying to say the same thing ⇒ short term memory is taxed (long term memory is suppressed!)
⇒ write clearly and concisely (example coming)

Marking scheme:
• subjective alignment of student answers to written guide ⇒ potential for variation 😐
• no time for bias (no desire either)
The last thing a lecturer wants after a week of marking: remark & supps
Example

Q: Someone at the Opera House asks “Where in Sydney is UNSW?”. How should you answer?

100%:
• A1a (If Q is worth 2% of exam): “Kensington, primarily, with other campuses in Paddington and other places.”
• A1b (If Q is worth 10% of exam): “The main campus is in Kensington, near Randwick, between ANZAC Pde and Botany, High and Barker Streets. The Fine Arts campus is in Paddington, and there are smaller campuses elsewhere (Coogee, Randwick). Parts of UNSW are outside Sydney, e.g. ADFA in Canberra, and shortly a Singapore campus.”

80%±10%: “Kensington”

60%±10%: “UNSW is Australia’s finest university, offering degrees in engineering, law ... In 1949, the Kensington campus was expanded ...”

45%±15%: “I ate donuts for breakfast, before brushing my teeth and catching the bus to UNSW. .... in Kensington ...”

30%±30%: “I ate donuts for breakfast, before brushing my teeth and catching the bus to UNSW. The grass was blue and the sky was green. The bus was crowded and there was this person .... in Kensington ...”

0%: “Earth”, “TELE 4363 lectures were held in LG1, WebsterA and G25.”
Realistic example

Q: “What is the basic reason why traditional TCP performs poorly when used across wireless networks? (5 marks)”

A: Slows down in response to loss, assuming that loss is due to congestion, but more likely due to transmission error in wireless network.

Answers in order of decreasing merit follow:
The basic reason TCP performs poorly across wireless networks is that the loss of packets is due to the transmission medium, not due to congestion of the network. The transmission medium may result in temporary errors for single packets, not affecting future data. TCP assumes that this indicates congestion, and slows down accordingly. This slowdown results in poor performance, as it is not required.
TCP Traditional TCP utilizes wired networks (ie knows the location of the nodes. But in wireless, traditional TCP performs poorly because it cannot distinguish between congestion error or transmission error due to packet loss.

When this occurs, dupacks are sent in which the minimization of the congestion window will result and the performance would degrade enormously with this issue.
3: Roundabout answer+irrelevant info

- It is known that TCP in wireless experiences non-congestion induced loss—a lost packet is treated the same as upon receiving of three dupackets, it will perform for its error control mechanism.
- To halve half size of congestion window and retransmit packet to avoid further loss.
- Due to frequent loss experienced in wireless networks, TCP will lower its transmission rate so frequently that it will contribute to its poor performance.
2: Allusions to correct answer, interspersed with incorrect information

wireless networks generally have high transmission error rates, or missequencing of packets, this results in a delayed dupack. With the receipt of such a dupack, TCP source presumes error due to congestion and so goes into burst retransmit. At the same time reducing window size. This can be simply avoided by link layer retransmissions between base station and mobile host so to maintain high throughput.
2: Brevity sacrifices details needed to demonstrate technical understanding.

TCP is designed for wired networks, where loss mainly comes from congestion. Wireless networks suffer mostly from error and handoff problems.
1: Answer is buried amidst junk

Traditional TCP performs poorly when used across wireless network is because TCP was never designed to be used in wireless environments.

TCP is a connection oriented protocol that is designed to provide performance guarantees, i.e., it acts like a virtual circuit.

Wireless environments break the connection oriented assumption as it is hard to guarantee transmissions in a wireless environment.

In addition, wireless networks have different transmission and routing times, schedules, and protocols compared with fixed-line networks. This means that the assumptions TCP makes about congestion, window size, round-trip time, and interference (or the lack of it) are wrong and can be not optimal compared with what TCP was originally designed for hence TCP performs poorly when used across wireless networks.
f) As the Transport protocol TCP is connection-oriented and requires a call setup, it is unlike UDP which strives on connectionless datagram service and hence connectionless links. TCP therefore prefers the wired link to perform its reliable, in-order transfer of packets, especially because of its need for a connection phase to begin the transfer.
0: Stabbing blindly

f) The need for Base station to negotiate between the Fixed host and Mobile host given the fact that the Mobile host is Mobile and may move from one BS to another BS which means the creates problems, \( \Rightarrow \) Violate the End to End principle in which TCP is designed around. TCP under those circumstances can be implemented in split connection appy. That problem can be addressed by special protocols such as SNOOP, WTCP or Delayed Unpacks to solve the problem sometimes -Return the End to End principle, given the fact that re-transmission route can be change (mobile host moving) and more problems that result in from the wireless operation mode.
Lessons learned

Presentation matters 😊:
• Most important/relevant info first
• Underline main points? Risk of highlighting the wrong points
• Neat writing?!

No 2 answers are identical – descriptive conceptual subject matter
• Yet marks are quantized and can be identical.
• Could argue that one answer is better than another with the same mark.
• Could argue that one answer deserves ± 1 mark
• Could spend whole life arguing...
• Subjectivity in marking individual questions should even out over multiple questions.
After the exam: Supplementaries

- Note previous warning about reluctance to remark/grant supplementaries.
- “If any supplementary exams are offered, then they will definitely be no easier than the primary exam. Supplementary exams are generally only offered when there is a significant case for Special Consideration. Any supplementary exams will likely be held in the week starting Dec. 13, 2004.” [course outline]
- Special Consideration: “You must make formal application for Consideration for the course/s affected as soon as practicable after the problem occurs and within three working days of the assessment to which it refers.” [UNSW regulations]