

## CS 5150, Software Engineering

### Sample Test 1

*This test was set in a previous year when the tests were 45 minutes. The 2018 tests will be 60 minutes and the questions will be slightly longer.*

#### Instructions

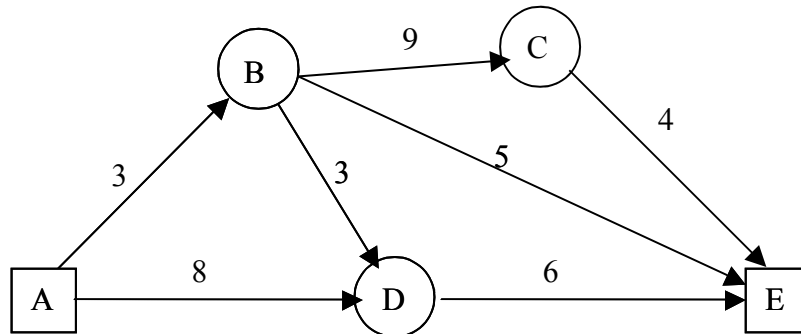
- 1) *Answer both questions.*
- 2) *Write your answers in an examination book. WRITE YOUR NETID ON THE FRONT OF EACH BOOK.*
- 3) *This is an open book test. You may use any books or notes.*
- 4) *Laptop computers, tablets, and similar devices may be used (a) to store lecture slides, notes, and other papers, and (b) as a calculator.*
- 5) *You may NOT listen to any audio materials or view the video lectures.*
- 6) *NO electronic device may be used for any form of COMMUNICATION, or any activity that involves networking, including email, texting, or searching the web.*

#### Question 1

- (a) Why is the pure Waterfall model of software development not recommended for large-scale software projects?
- (b) An online information system is being developed using a modified version of the Waterfall model. It is likely to be based on Web technology.
  - i How much should the choice of technology be considered during the feasibility study?
  - ii In how much detail should the choice of technology be specified during the requirements phase of the project?
  - iii At what stage should the decision be made to use an Apache Web Server 2.0 with Tomcat 4.1?

## Question 2

Here is an activity graph with time estimates for each activity in weeks.



- (a) For each activity in the graph, calculate the slack.
- (b) What is the critical path?
- (c) Suppose that an extra member of staff is available who can work on either activity BE or activity BC, but not both.
  - i If she works on activity BE, the time estimate for BE is reduced from 5 weeks to 3 weeks. How much would the elapsed time to complete the complete project be reduced?
  - ii If she works on activity BC, the time estimate for BC is reduced from 9 weeks to 6 weeks. How much would the elapsed time to complete the complete project be reduced?