8 questions on **2 pages. 100 marks total. 75 minutes total**
One $8\frac{1}{2}$ **X 11 Aid Sheet. No other aids permitted.**
Answer ANY 5 questions. All questions have equal weight. WRITE LEGIBLY!
If more than 5 questions are answered the *first* 5 will be marked.

1. You are setting up a SQA group for your small struggling software company.
The major SQA activities are listed below

1	Application of Technical Methods	5	Control of Change
2	Formal Technical Reviews	6	Measurement
3	Software Testing	7	Record Keeping and Reporting
4	Enforcement of Standards		

You don't have enough budget to set up a full SQA department immediately.
a) Assign an implementation priority to the activities listed above.
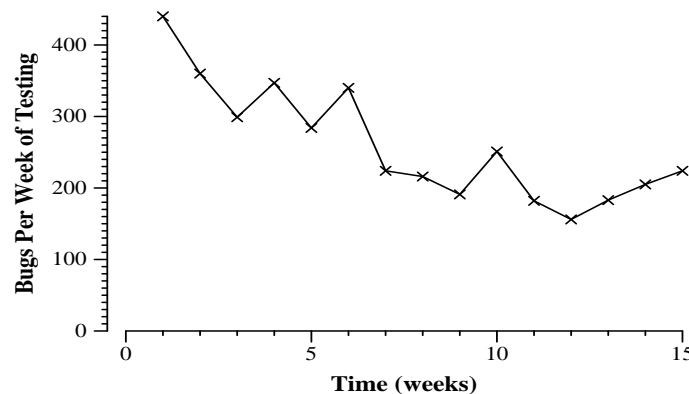   i.e. which one would you implement first? last?
b) Justify you choice of priorities.

2. You are managing a large software project for Canadian software company. In order to get enough developers to complete the project on time, you are using development teams at your company's offices in Vancouver, Edmonton, Toronto, Ottawa, Montreal and Halifax.
How would you handle version control and software configuration management for this distributed development effort?

3. Your project team for CSC408S has been so successful that you've decided to go into business as a software producing company. You don't have a lot of money to start the company, but you want to get some good tools to help you work more efficiently. What *five* tools would you buy for your company? Justify your choice.

4. You are responsible for the testing of your company's next major project. Your Test Plan called for 8 weeks of testing. Fifteen weeks have elapsed and your testing team is still finding an uncomfortably large number of errors every week (see graph below).

a) What would you do to discover why testing is taking so long?
b) What recommendations would you make to management about when testing
   can be finished?

5. Explain why maintenance programming may be more challenging than new development. Why must a maintenance programmer have good people skills? What are other desirable characteristics of a maintenance programmer?

6. Assume you are involved in the startup of a software games company. Your business plan calls for over 20 distinct game packages. Each package will have 4 releases a year. You will be responsible for the software release process for all of these products. Since your company is just starting you have the opportunity to establish conventions and procedures to make the release process as efficient as possible. What would you ask for?

7. For Phase E of the course project, the client has requested a backup capability.
New simon commands:

S [file]   The contents, buffer and file names, current line positions, and change statuses for any non empty buffers, and any marks are saved in the argument file file which defaults to "simon.sv". A non-empty buffer is any buffer that contains lines or has a non-null file or buffer name. Note: The undo information is not saved.

R [file]   The buffer and file names, the lines, the current line positions, and the marks are restored from a previously saved file (see the S command) file, which defaults to "simon.sv". Note: When a buffer is reloaded from the saved file it uses the first available free buffer, which might not be the same buffer that it occupied when the save command was issued. Note: Any temporary backing files should be reinitialized before new buffers are loaded. Note: Any undo information is lost. Note: The current and previous buffers are both set to buffer #0.

Changes to API for Phase E
int edSave(char* F)
   The current non-empty buffers, lines, and marks are saved in the file F. The saved buffer information is the buffer's name, file name, change status, and current line. -1 is returned in the event of failure, otherwise 0 is returned.

int edRestore(char* F)
   The previously saved buffers, lines, and marks are restored. edRestore returns 0 if the restoration is successful. Otherwise -1 is returned.

a) Discuss the technical issues related to implementing this request.
b) Estimate the time and effort required to make this change to your Phase D project software.

8. Assume you are heading the Software Testing Group that is responsible for testing the addition to the buffer manager package described in the previous question. Design a comprehensive set of tests to test the additions to the package after the new features have been added. Describe each test and explain its purpose.

Survey [no marks] Would you prefer a two hour Final Exam to this end of term test?