PRIFYSGOL CYMRU; UNIVERSITY OF WALES

DEGREE EXAMINATIONS JANUARY 2003

SWANSEA

Computer Science

CS 134   Professional Issues and Software Engineering

Attempt 2 questions out of 3

Time allowed: 2 hours

Students are permitted to use the dictionaries provided by the University

Students are NOT permitted to use calculators

Question 1

(a) **(i)** In the context of project management, explain the following terms: task, milestone, critical path, and slack.

[6 marks]

(ii) For each of the tasks listed below, determine the earliest and latest event time, the slack, and whether or not the task is on the critical path. Draw a network chart and highlight the critical path.

Task	Predecessor	Duration
A	None	1
B	None	3
C	A	3
D	B, C	5
E	C	1
F	D	4
G	E, F	3
H	G	2
I	G	2
J	H, I	5
K	J	6

[8 marks]

(b) Explain using an example the following types of testing: unit testing, white box testing, and stress testing.

[6 marks]

(c) How can project scheduling affect integration testing?

[5 marks]

Question 2

(a) Describe the major legislative provisions for the protection of Intellectual Property Rights.

[15 marks]

(b) Discuss what is meant by "Free Software" (as used by Richard Stallman and the Free Software Foundation). Include in your answer an explanation of the term "Copyleft" and how Free Software differs from Open Source Software. Explain how "free software" does not mean "non-commercial".

[10 marks]

Question 3

(a) What is the purpose of the Capability Maturity Model? Give a brief description of each level of the model.

[8 marks]

(b) Professional organisations for software developers such as the British Computer Society (BCS) and the Association for Computing Machinery (ACM) have developed a Code of Conduct for their members. What do such Codes contain and what purpose do they serve?

[8 marks]

(c) Mary has recently been promoted to the role of support manager in a medium sized company. Shortly after she begins her new job she is asked by the IT manager to check on how people are using e-mail and what they keep in their files. She has the facility to do this because of the access privileges that she has. Her manager explains that this is standard practice in the company to ensure that computers and email are not used for private purposes. When Mary protests that she feels this is an invasion of privacy and points out that she has never seen any company notice saying that files and email may be read by the support manager, she is told that the previous support manager did not object, that it has become established practice in the company, and that honest staff have nothing to hide.
Discuss the legal and ethical issues that arise in this example.

[9 marks]