

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
COMPUTER SCIENCE DEPARTMENT
MAY EXAMINATIONS 2002**

**SUBJECT: SOFTWARE PROJECT MANAGEMENT
CODE: SCS 4204**

INSTRUCTION TO CANDIDATES

Answer any five (5) questions.
Each question carries 20 marks

Time: 3 hours

QUESTION ONE

- a) Identify the main types of personnel employed in an information systems department. For each stage of a typical IS development project, list the types of personnel who are likely to be involved. [10]
- b) What are the differences between functional decomposition and JSP? [10]

QUESTION TWO

- a) A software package is to be designed and built to assist in software cost estimation. It will input certain parameters and produce initial cost estimates to be used at bidding time.
- i) It has been suggested that a software prototype would be of value in these circumstances. Explain why this might be. [5]
- ii) Discuss how such prototyping could be controlled to ensure that it is conducted in an orderly and effective way and within a specified time span. [10]
- b) A change in a program specification will normally be carried through into changes to the program design and then changed code. What other products may need to be modified. [5]

QUESTION THREE

- a) What is the difference between an activity network and a precedence network? Illustrate your answer with examples. [8]
- b) Discuss how meaningful the following measurements are:
 - i) The number of error messages produced on the first compilation of a program.
 - ii) The average effort to implement changes requested by users to a system.
 - iii) The percentage of lines in program listings that are comments.
 - iv) The number of pages in a requirements documents. [12]

QUESTION FOUR

a)

HAZARD	LIKELIHOOD	IMPACT	RISK VALUE
Changes to requirements specification during coding	2	8	18
Specification takes longer than expected	3	7	21
Staff sickness affecting critical activities	5	7	35
Staff sickness affecting non-critical activities	7	3	21
Module coding takes longer than expected	5	5	25
Module testing demonstrates errors of deficiencies in design	1	10	10

For each of the risks listed above identify actions that might be taken to reduce their likelihood or impact. [12]

- c) Explain four (4) methods used to visualize the progress of a project. [8]

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QUESTION FIVE

- a) What benefits can be derived from using project management software at each of the following stages:
- i) Project evaluation
 - ii) Activity planning
 - iii) Software estimation
- [12]
- b) Which of the following events are poor external milestones and which are good external milestones? For those which you consider to be poor external milestones, suggest what other kind of milestone they are suitable for.
- i) The completion of the detailed design of a particular package.
 - ii) Fifty per cent of the system has been implemented
 - iii) The completion of the system design document
 - iv) The production of the system tests.
- [8]

QUESTION SIX

- a) The following is a list of activities carried out by a project manager. Identify which of the management functions is being exercised in each case.
- i) Meeting the customer at progress meetings
 - ii) Selecting a different method of project organization from that normally used by the developer
 - iii) Costing a software project
 - iv) Hiring new programmers for a specific project
 - v) Checking on project expenditure
- [5]
- b) Suggest quality specifications for a word processing package. Give particular attention to the way that practical tests of these attributes could be conducted.
- [15]

QUESTION SEVEN

- a) Is the process of checking the system specification against the statement of requirements an example of validation or verification? [2]
- b) Why is the process of requirements analysis so difficult? [4]
- c) Is unit testing an example of validation or verification? [2]
- d) Describe two circumstances where the business plan and the staffing levels should not be rigidly adhered to when deciding whether to take on a new project. [6]
- e) Compare and contrast conventional team organization with that of a Chief Programmer Team. [6]

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END OF QUESTION PAPER

GOOD LUCK!