



MANICALAND STATE UNIVERSITY OF APPLIED SCIENCES

FACULTY OF APPLIED SCIENCES AND TECHNOLOGY

DEPARTMENT: COMPUTER SCIENCE AND INFORMATION SYSTEMS

MODULE: ICT PROJECT MANAGEMENT

CODE: INSY222

SESSIONAL EXAMINATIONS

OCTOBER 2023

DURATION: 3 HOURS

EXAMINER: MR S. MARIME

INSTRUCTIONS

1. Answer *All* in Section A
2. Answer *three* questions in Section B.
3. Start a new question on a fresh page
4. Total marks 100

Additional material(s): Calculator

SECTION A

Answer question 1 in this section

QUESTION 1

- a) Describe FOUR techniques for carrying out quality control on a software system during development. (8)
- b) In addition to software what else can be tested on an ICT project? (5)
- c) Identify and explain two different techniques that can be used to estimate the size of a software project. (4)
- d) Given the following COCOMO constraints table:

Software Project	a_b	b_b	c_b	d_b
Organic	2.4	1.05	2.5	0.38
Semi-detached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

Assume that you are to use the basic COCOMO model to do estimations for a project. The project is semi-detached and a person on your team who has done this before estimates the total source lines of code to be 36200. The average salary of each software engineer is \$2500.00 per month.

- i. Calculate what COCOMO would predict for the effort to be applied for this project in person-months. (2)
- ii. Calculate what COCOMO would predict for the total duration of this project in months. (2)
- iii. Calculate the suggested number of software engineers required to do the project. (2)
- iv. Calculate the total salary bill required to complete the project. (2)

SECTION B

Answer any three questions from this section

QUESTION 2

- a) There are some projects that will be given approval even though the costs exceed the benefits in the business case. Describe ONE example of when this might be legitimate. (5)
- b) Before any system can go-live it must be acceptance tested by the users. Explain THREE different areas that are covered during acceptance testing. (6)
- c) MSUAS Computer Club is considering an investment of \$100 000.00. The directors have identified two alternatives, A and B. the expected annual cash flows for the two alternatives are given below:

	Alternative A	Alternative B
Initial Investment	(100 000)	(100 000)
Cash flow year 1	35 000	35 000
Cash flow year 2	28 000	35 000
Cash flow year 3	32 000	35 000
Cash flow year 4	40 000	35 000

- i. Evaluate each of the alternatives using NPV with the required rate of return of 10%. (8)
- ii. Which alternative will you recommend based on your calculations? (2)
- iii. What is alternative B's payback period? (2)
- iv. Should the investment be made if management wants to recover the initial investment in 2 years or less? (2)

QUESTION 3

Describe the phases of the project management life cycle, and explain the key activities that should take place during each phase. (25)

QUESTION 4

- a. Explain the importance of critical path analysis in project scheduling, and describe how project managers can use this technique to identify and manage project risks. (15)
- b. Describe the role of risk planning and control in IT project management, and explain how these processes can help project managers to reduce the likelihood and impact of project risks. (10)

QUESTION 5

- a. Explain the concept of "people capability maturity," and describe how project managers can use this model to improve the performance of their project teams. (15)
- b. Describe the importance of cost-benefit analysis in project evaluation, and explain how this technique can be used to make informed decisions about project funding and resource allocation. (10)

END OF EXAMINATION