

EGERTON



UNIVERSITY

UNIVERSITY EXAMINATIONS

MAIN CAMPUS

ACADEMIC YEAR 2012/2013

THIRD YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

COMP 306 - SOFTWARE ENGINEERING I

STREAM: Y3 BSC (ICEEN)

TIME: 2 HRS

DAY: Tuesday, 12.00 – 2.00 p.m.

DATE: 21.5.13

INSTRUCTIONS: Answer question ONE and any other two.

QUESTION ONE(COMPULSORY) 30 MARKS

- A. Describe two broad classes of software products (2 marks)
- B. Name four fundamental process activities which are common to all software process. (8 marks)
- C. Discuss a number of different general models or paradigms of software development. (10marks)
- D. Discuss the following models of the software development
- i. Waterfall model
 - ii Prototyping
 - iii. Boehm's Spiral model. (6 marks)

E. What are the advantages and disadvantages of Evolutionary development when compared to Waterfall model. (12 marks)

QUESTION TWO (20 MARKS)

A. Discuss the following

- i. Arrow Diagramming method
- ii. Precedence Diagramming Method
- iii. CPM
- iv. PERT
- v. Gantt Chart
- vi. Give two types of activity dependencies
- vii. Milestone
- viii. Activity
- ix. Activity Sequencing
- x. Slack or float time

(2 marks each)

QUESTION THREE(20 MARKS)

A. Define the following

- i. Functional requirement
- ii. Non-functional requirement
- iii. Requirements Definition
- iv. Requirements Specification
- v. Software Specification

(4 marks each)

QUESTION FOUR(20 MARKS)

A. Discuss the following Software cost Estimation Techniques

- i. Expert judgement
- ii. Estimation by analogy
- iii. Parkinson's Law
- iv. Pricing to win
- v. Algorithmic cost modelling

(2 marks each)

B. Given the following

Basic COCOMO Formula

Organic mode: $PM = 2.4(KDSI)^{1.05}$

$TDEV = 2.5(PM)^{0.38}$

KDSI: thousands of delivered source instructions

PM: person-months

And $KDSI=32,000$

Compute

- i. Effort (PM) person months
- ii. Time to Develop(TDEV) in months
- iii. Number of Required people(N) (6 marks each)

C. What happens when you add more people to the project? (4 marks)

QUESTION FIVE(20 MARKS)

- A. What is software maintenance (1 marks)
- B. Discuss three different types of software maintenance (3 marks)
- C. What is Program evolution dynamics (10 marks)
- D. Discuss the following testing methods
 - vi. White box testing
 - vii. Black box testing
 - viii. Grey box testing (6 marks)
