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University Examinations 2023/2024

**SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF BUSINESS INFORMATION TECHNOLOGY AND BACHELOR OF
SCIENCE IN EDUCATION**

CCS 3201: SOFTWARE ENGINEERING

DATE: APRIL 2024

TIME: 2 HOURS

INSTRUCTIONS: *Answer question **one** and any other **two** questions*

QUESTION ONE (30 MARKS)

- a) Discuss any four roles of a software engineer in a large software project [4 marks]
- b) Distinguish between software process and project. [2 marks]
- c) Describe disadvantages of SRS document? [4 marks]
- d) Discuss using an example, the notations used in UML Sequence diagram [4 marks]
- e) list the benefits of involving users in release testing at an early stage in the testing process?
Are there disadvantages in user involvement? [4 marks]
- f) Discuss the IEEE Software Requirement Specification document outline. [6 marks]
- g) Explain using your own example, the categories of risks in software engineering. [4 marks]



MUST is ISO 9001:2015 and



ISO/IEC 27001:2013 CERTIFIED

- h) Define software quality and explain why software engineers have to worry about software quality [2 marks]

QUESTION TWO (20 MARKS)

- a) Explain the term Configuration management [3 marks]
- b) Discuss the difference between: [4 marks]
- a. alpha testing and Beta testing
 - b. Reverse engineering and restructuring
- c) Illustrate and explain the workings of the following process models. [5 marks]
- i. Agile
 - ii. Spiral
- d) Briefly explain the components and purpose of. [4 marks]
- i. De Marco method
 - ii. Henry and Kafura Metric
 - iii. McCall Taxonomy
 - iv. Project Activity network diagram example
- a) Draw a state diagram to illustrate the behavior of an infant bank account: note that the account is empty to start with and money can then be deposited, to put the account in credit, deposit can be withdrawn as long as the account is not overdrawn. The account can only be closed when the balance is zero. Overdraft is not allowed. [4 marks]

QUESTION THREE (20 MARKS)

- a) Explain the following:
- i. Software prototyping steps using an example [4 marks]
 - ii. Work breakdown structure using an example [4 marks]
 - iii. Components of analysis and design workbenches [4 marks]
- b) Outline the components of Change Control request form fields [4 marks]



c) Discuss the need for Software Configuration Management and state how it is achieved in a standard software engineering project. [4 marks]

QUESTION FOUR (20 MARKS)

a) Discuss the capability maturity model. [4 marks]

b) List and explain any four non-technical factors affecting cost of software maintenance. [6 marks]

c) Compare and contrast the terms verification and validation in software development? [4 Marks]

d) list and describe statistical Testing main steps [6 marks]

QUESTION FIVE (20 MARKS)

a) Evaluate four different methods that an analyst can use to get requirements for an information system for an organization. [4 marks]

b) List approaches to software effort/cost estimation? [2 marks]

c) State the importance of scheduling activity in Project management using an example. (4 marks)

d) Discuss the reverse engineering process [4 marks]

e) Enumerate any two factors affecting software quality [2 marks]

f) Discuss the difference between COCOMO I and COCOMO II model for software estimation. [4 marks]

