

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

**UNIVERSITY EXAMINATIONS 2018/2019**

**YEAR 3 SEMESTER 1SPECIAL/SUPPLEMENTARY EXAMINATIONS FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY/BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

**BIT 2321: SOFTWARE ENGINEERING II**

**DATE: JANUARY 2019 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

QUESTION ONE (30 MARKS)

a) Give any 3 reasons of why software development projects fail (6 marks)

b) Describe the following UML notations (3 marks)

i) State Machine Notation

ii) Interaction Notation

iii) Actor Notation

c) Distinguish between functional and non-functional requirements (2 marks)

d) Explain the following object oriented analysis concepts: (4 marks)

i) User interface classes

ii) Business Domain classes

iii) Process classes

iv) Persistent classes

e) Describe four characteristics of an effective design pattern (4 marks)

f) Explain the following design principles underlying component based software engineering (4 marks)

i) Independence of components (2 marks)

ii) Integration of components (2 marks)

g) What is the meaning of the following terms? (3 marks)

i) Separation of concerns

ii) Modularity

iii) Functional independence

h) Define configuration management (2 marks)

i) Distinguish between software verification and validation (2 marks)

QUESTION TWO (20 MARKS)

a) Describe the following software engineering concepts: (6 marks)

i) Project

ii) Reliability

iii) Efficiency

iv) Usability

v) Partability

vi) Reusability

b) Explain four principles of software engineering (4 marks)

c) Discuss with the aid of diagrams, the following UML notations.

i) State machine diagrams (5 marks)

ii) Activity diagrams (5 marks)

QUESTION THREE (20 MARKS)

a) Explain the following (6 marks)

i) Process metrics

ii) Project metics

b) Discuss the following requirements elicitation activities (4 marks)

i) Identifying actors

ii) Identifyind use cases

c) Describe the following analysis concepts (4 marks)

i) Generalization

ii) Specialization

d) Analysis requires the cooperation of a wide range of individual. Explain the role of the following (6 marks)

i) End User

ii) Client

iii) Analyst

QUESTION FOUR (20 MARKS)

a) Discuss the following key factors when planning resuse (8 marks)

i) Development schedule of software

ii) Expected software lifetime

iii) Skill and experience of development team

iv) Application domain

b) Discuss the following technical activities of testing (12 marks)

i) Usability testing

ii) Unit testing

iii) Integration testing

iv) System testing

QUESTION FIVE (20 MARKS)

a) Describe the following main concepts of configuration management (8 marks)

i) Configuration item

ii) Programmer’s Dictary

iii) Version

iv) Software Repository

b) Describe the following services provided by a collaborative development environment (12 marks)

i) Namespace

ii) Calendar

iii) Templates

iv) Metrics support

v) Communication analysis

vi) Artificial – dustering