(KNOWLEDGE FOR DEVELOPMENT)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS

2019/2020 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATIONS

THIRD YEAR FIRST SEMESTER

FOR THE DEGREE IN

(INFORMATION TECHNOLOGY/ COMPUTER SCIENCE)

COURSE CODE: BIT 314 /C SC 311

COURSE TITLE: SOFTWARE ENGINEERING

DATE: 17/02/2021 **TIME:** 8.00 A.M. - 10.00 A.M

INSTRUCTIONS

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

a. Briefly explain the meaning of the following terms;

i. Software Engineering [2 Marks]

ii. Software product [2 Marks]

iii. Software [2 Marks]

b. What is the meaning of scope creep? Explain how this it is handled in software engineering. [4 Marks]

c. Differentiate between the Greece and the Roman approaches as used in software engineering. [4 Marks]

d. Explain **why software related problems are treated as** "problem of many hands "**link this to** *the case of the killer robot*. [6 Marks]

e. Discuss the following quality factors in software [4 Marks]

i Learnability

ii Usability

f. Project Management is concerned with the activities involved in ensuring that software and other information technology related projects are delivered on time and on schedule and also in accordance with the requirement of the organizations' developing and procuring the software. Discuss how time, schedule and resources can affect the quality attributes of software product.

[6 Marks]

QUESTION TWO [20 MARKS]

a. Differentiate between

i Deliverables and milestones [2 Marks]

ii Verification and validation [2 Marks]

b. Discuss **two** software cost estimation techniques [4 Marks]

c. Differentiate between function and non-functional requirements using M-PASE as a sample application [4 Marks]

d. Discuss requirements engineering process and point out any four sources of changes in software requirements. [8 Marks]

QUESTIONTHREE [20 MARKS]

a. What is a software process model? [2 Marks]

b. Briefly describe the following software development lifecycles models.

(i) Waterfall model [3 Marks]

(ii) Spiral model [3 Marks]

c. Explain the situations that will motivate a developer or an analyst to use prototyping model and not incremental process model [8 Marks]

d. State any FOUR reasons why software testing is important. [4 Marks]

QUESTION FOUR [20 MARKS]

a. What is the meaning of **risk**, **risk management** and **risk control**? [4 marks]

b. Explain different types of risks that are likely to affect a software product [8 marks]

c. What are the various mitigation strategies that can be used to address or control the risks in (b) above? [8 marks]

QUESTION FIVE [20 MARKS]

a. How can an organization culture affect software projects? [5 marks]

b. Explain various types of maintenance strategies used in software lifecycle. [5 marks]

c. Explain how the following estimation costs may help software projects mature [10 marks]

(i) Size estimation
(ii) Effort estimation
(iii) Cost estimation
(iv) Resource estimation
(v) Project duration estimation