(Knowledge for Development)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR FOUR SEMESTER ONE EXAMINATIONS

FOR THE DEGREE OF
(COMPUTER SCIENCE)

COURSE CODE : CSC 462E

COURSE TITLE : SOFTWARE METRICS

DATE: 16 /05/2022 **TIME:** 02.00 P.M – 04.00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE [COMPULSORY] [30 MARKS]

a) i. An attribute is a property of an object in the real world. Differentiate between internal and external attributes of an object. [2 marks]

ii. With reference to the entity "*Code*", state the attribute and possible measure of the attribute. [2 marks]

iii. Distinguish between measure and measurement [2 marks]

b) KRA- is in the process of implementing metrics in its operations.

i. Explain how would you convince KRA to adopt software metrics in organizations' software evaluation? [6 marks]

ii. What are some of the problems KRA would experience in software measurement? [3marks]

(c) Explain any four quality metrics [8 marks]

(d) Discuss any two classes of metrics from a commercial perspective. [4 marks]

(e) Complete the table given by stating at least TWO attributes of each entity. [3 marks]

Entity	Attribute
Design	
Requirements	
Specification	

QUESTION TWO [20 MARKS]

a) Discuss the metric guidelines that must be followed when implementing metrics software metrics in an organization. [10 marks]

b) i. Software metrics are different from just testing for errors because they can provide a wider insight into the software system. Explain the types of insights Kibabii University can derive by using software metrics in software systems e.g. ERP. [10 marks]

QUESTION THREE [20 MARKS]

a) Discuss why you opt for the LOC approach compared to the FP approach [10marks]

b) i. What do you understand by GQM? [2 marks]

ii. Explain the importance of GQM to the chief information officer in charge of systems in an organization. [6 marks]

iii. State any two characteristics of software metrics data collected. [2 marks]

QUESTION FOUR [20 MARKS]

Discuss the following metrics: as applied OO

i) Requirements metrics [5 marks]

ii) Design metrics [5 marks]

iii) Process metrics [5 marks]

iv) Product metrics [5 marks]

QUESTION FIVE (20 MARKS)

a) Distinguish between the following:

i. A fault and failure. [2 marks]

ii. Direct and Indirect metrics [4 marks]

b) Table is application of GQM where Question has to be asked. Please fill in possible metrics part

[14 marks]

S/No	Question	Possible Metric
1	What is the level of requirements stability?	
2	Why are the requirements changed?	
3	• What is the cost of changing the requirements?	
4	• Is the number of changes to requirements decreasing with time?	
5	• How many incomplete, inconsistent, and missing, allocated requirements are identified?	
6	• How many other requirements are affected by a requirement change?	
7	Is the number of to be done (TBD)	