THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

MAY – AUGUST 2021

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER AND INFORMATION SCIENCE

REGULAR PROGRAMME

DIT 015: INTRODUCTION TO SOFTWARE ENGINEERING

Date: AUGUST 2021	Duration: 2 Hours
INSTRUCTIONS: Answer Question ONE and any other TWO Questions	

Question 1

a) At what point should a software engineer use business process reengineering? **(4 Marks)**

b) What is constituted in an IT project? **(5 Marks)**

c) Why is software engineering important as a subject and in practice? **(3 Marks)**

d) Explain characteristics software engineering? **(8 Marks)**

e) Identify four good qualities that a software engineer must have? **(4 Marks)**

f) Define a software process. **(2 Marks)**

g) What is system software testing? Briefly explain key types of system tests conducted for software based systems. **(4 Marks)**

Question 2

a) What are the known good quality software attributes? Explain any five. **(10 Marks)**

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b) Distinguish between verification and validation in respect to software engineering.

(4 Marks)

c) Prototyping is seen as to address the disadvantages of the waterfall model. However this model has its own limitations. Discuss any three disadvantages. **(6 Marks)**

Question 3

a) Explain the following software process models. **(9 Marks)**
   a. Component based software engineering
   b. Evolutionary development
   c. Water fall model

b) What are the advantages and disadvantages of the model in Question 3(**c**)?

(4 Marks)

c) Explain why in software engineering it is important to compare one specification to another one. **(3 Marks)**

d) Give two benefits of comprehensive code reviews. **(4 Marks)**

Question 4

a) Giving at least four examples explain what is project risk management?**(6 Marks)**

b) Explain the phases of risk management process. **(8 Marks)**

c) Write brief notes on the spiral model. **(6 Marks)**

Question 5

a) According to the chaos report what conclusion can you draw about IT projects?

(7 Marks)

b) Giving examples distinguish between functional and non-functional requirements as used in software engineering. **(6 Marks)**

c) Giving examples explain what is user interface (UI)? **(4 Marks)**

d) Explain the following terms in respect to software engineering? **(3 Marks)**

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    i.   Coupling

    ii.   Cohesion

   iii.   Modularity

END

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