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MAIN EXAMINATION

JANUARY – APRIL 2020 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER AND LIBRARY SCIENCE

REGULAR PROGRAMME

DIT 015: SOFTWARE ENGINEERING

Date: APRIL 2020	Duration: 2 Hours
INSTRUCTIONS: Answer Question ONE and any other TWO Questions	

Q1. a) Briefly discuss what is software engineering. **(4 Marks)**
b) Identify four good qualities that a software engineer must have? **(4 Marks)**
c) What is system software testing? Briefly explain key types of system tests conducted for software based systems. **(4 Marks)**
d) Software has evolved. What has guided the software evolution? Give at least four different reasons to support your answer. **(8 Marks)**
e) Explain characteristics software engineering? **(8 Marks)**

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

Q2. a) Identify and explain four areas that feasibility study must address. **(4 Marks)**
b) Giving examples explain what is user interface (UI)? **(4 Marks)**
c) What is the purpose of problem identification phase? **(3 Marks)**
d) Giving examples distinguish between functional and non-functional requirements as used in software engineering. **(6 Marks)**
e) Explain the following terms in respect to software engineering? **(3 Marks)**

    i.   Coupling
    ii. Cohesion

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iii. Modularity

Q3. a) Give two benefits of comprehensive code reviews.

(4 Marks)

b) Explain the following software process models.

(9 Marks)

i. Component based software engineering
ii. Evolutionary development
iii. Water fall model

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

(4 Marks)

d) Explain why in software engineering it is important to compare one specification to another one.

(3 Marks)

Q4. a) Explain the following terms in reference to software engineering.

(4 Marks)

i. System documentation
ii. Program size

b) Giving examples explain the difference between adaptive maintenance and projective maintenance.

(6 Marks)

c) Distinguish between verification and validation in respect to software engineering. **(4 Marks)**

d) 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)

Q5. a) Giving at least four examples explain what is project risk management?

(5 Marks)

b) Explain the phases of risk management process.

(8 Marks)

c) Write brief notes on the spiral model.

(6 Marks)

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END

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