TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

UNIVERSITY EXAMINATIONS FOR DIPLOMA IN TECHNOLOGY (ELECTRICAL & ELECTRONIC ENGINEERING)

EEE 2205

ENGINEERING SOFTWARE DEVELOPMENT AND APPLICATIONS I

END OF SEMESTER EXAMINATION

SERIES:FEB/MAR 2018

TIME: 2 HOURS

Instructions to Candidates

You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of **five** Questions
Attempt any THREE Questions.
Do not write on the question paper.

QUESTION ONE

(a) Define the following terms as used in software engineering

i. software
ii. Software process
iii. Software validation
iv. Software engineering (4 marks)

(b) Distinguish between generic and customized software giving ONE example in each case. (6 marks)

(c) Using a diagram, describe the software development life cycle of software. (10 marks)

QUESTION TWO

(a) Use diagrams to explain the following process models:

i. Component based

ii. spiral (11 marks)

(b) Use a diagram to explain the prototype software model and give TWO advantages for the model (9 marks)

QUESTION THREE

(a) A software is required to manage a college registration where student information is keyed into the system. Using this scenario identify at least THREE objects and model the software using:

i. sequence diagram

ii. class diagram (10 marks)

(b) Explain the following terms.

i. Tuple

ii. degree

iii. Primary key

iv. Domain (6 marks)

(c) State any FOUR requirements for a relation (4 marks)

QUESTION FOUR

(a) Distinguish between the following:

i. Super key and candidate key

ii. Entity integrity and referential integrity. (7 marks)

(b) Draw an entity relationship diagram for an ATM machine (4 marks)

(c) (i) Explain each line in the following VB code

```
Public Sub inferenceExample()
' Using explicit typing.
Dim num1 As Integer = 3
' Using local type inference.
Dim num2 = 3
End Sub
```

(ii) Write statements in Visual Basic to declare any THREE data types (9 marks)

QUESTION FIVE

(a) State and explain any THREE data types used in Visual Basic (6 marks)

(b) Explain the following control statements in Visual Basic and write the VB statement in each case

i. Do until statement
ii. Do while statement
iii. If – then statement
iv. If – the – else statement (8 marks)

(c) Write a Visual Basic program to display integers 1 to 20 (6 marks)