JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION SYSTEMS

3rd YEAR 1st SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE : IIS 3315

COURSE TITLE : SOFTWARE DEVELOPMENT

EXAM VENUE :   **STREAM :**

DATE : Dec, 2016   **EXAM SESSION :**

TIME: 2.00 HOURS

INSTRUCTIONS:

1. **Answer Question 1 (Compulsory) and ANY other two questions**

2. **Candidates are advised not to write on the question paper**

3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION ONE 30 MARKS

Kevin has been named Project Manager of a new reservation system for Kenya Airways. He will lead a team of developers tasked with all phases of the application life cycle. Kevin and his team met with managers from each branch of the company and discussed the company's needs and the basic features that everyone requires. The application will be web-based, and will allow Kenya Airways customers to search flights, book reservations, and check in online. After the meeting, Kevin and his developers began outlining the program from their perspective. Although they haven't begun coding, the developers are beginning to sketch out the classes and objects of the project using UML. Their outline is not complete, but a plan for accomplishing the required tasks is coming together. Kevin wants to divide the job in such a way that team members can work on different parts of the program at the same time.

Tasks
   a) Kevin's meeting with the company's managers is part of which stage of the application life cycle?
                                                                      (2 Marks)
   b) Why did the team adopt the use of UML in this project?   (2 Marks)
   c) Describe the roles of each and every project team member that Kevin will include in this project.
                                                                      (10 Marks)
   d) As the team will be writing codes, testing will play a major role in this software development. You are required to describe types of testing strategies that will be performed by the team.
                                                                      (9 Marks)
   e) As an expert in Software Development, what do you think makes up a good software especially the one Kevin and his team are planning to develop?   (6 Marks)

 QUESTION TWO 20 MARKS

a) What is Agile Development?   (2 Marks)
b) What are the FOUR key principles or values of agile software development?   (4 Marks)
c) Using an agile method of your choice (for example: DSDM; eXtreme programming; Scrum) describe the iterative/incremental project life cycle. You should illustrate your answer with a diagram of your chosen method's life cycle.   (8 Marks)
d) Differentiate between structure approach and object oriented approach to software construction and modeling   (6 Marks)

QUESTION THREE 20 MARKS.

a) A vending machine sells small, packaged, ready to eat items (chocolate bars, cookies, candies, etc.). Each item has a price and a name. A customer can buy an item, using a smart card (issued by the vending machine company) to pay for it. No other payment forms (i.e. cash, credit card) are allowed. The smart card records on it the amount of money available. The functions supported by the system are: Sell an item (choose from a list of items, pay item, distribute item) Recharge the machine Set up the machine (define items sold and price of items) Monitor the machine (number of items sold, number

of items sold per type, total revenue). The system can be used by a customer, a maintenance employee (who recharges items in the machines), an administrator (who sets up the machine).

Task

You are required to Model the a class diagram Vending Machine system with the following;

    i)   Use Case Diagram   (5 Marks)

    ii)   Class diagram   (5 Marks)

b)   A library loans three different kinds of items to customers: books, video tapes and compact disks. Each item has a title, and publisher. In addition, books have an author, and CDs have an artist. The library may have multiple copies of the same book, video tape or compact disk. There are two different kinds of customer: students and staff. For both kinds of customer, the library has their name, sex and address. Students may borrow at most 20 items.

Task

Draw a UML user case diagram and class-diagram for a partial specification of the system described above. Include as much relevant detail from the description as possible on the diagram, including attributes, associations (where possible, use formal notation for describing these) and operations. Details such as type and range of attributes and arguments of operations are not required.   **(10 Marks)**

QUESTION FOUR 20 MARKS

a) Describe the following terms as used in software development.

    i)   HTML   (2 Marks)

    ii)   CSS   (2 Marks)

    iii)   JavaScript   (2 Marks)

    iv)   PHP   (2 Marks)

    v)   XML   (2 Marks)

b) Distinguish the macromedia Dreamweaver from HTML language   (6 Marks)

c) What is the output of the following codes;

```
<!DOCTYPE html>
<html>
<head>
        <title>Page Title</title>
</head>
<body>

        <h1>This is a Heading</h1>
        <p>This is a paragraph.</p>

</body>
</html>
```
                                                            (4 Marks)

QUESTION FIVE 20 MARKS

a) Describe the following Key terms as used in the System Development Life Cycle (SDLC).
   i. Phases   (2 Marks)
   ii. Waterfall Model   (2 Marks)
   iii. Spiral Model   (2 Marks)
   iv. Incremental Development   (2 Marks)
   v. Walking Skeleton   (2 Marks)

b) Describe a system development method of your choice. You should include a description of the stages/phases of your method as well as the interim products produced at each stage. A diagram of the method should be produced if appropriate.   (10 Marks)