COLLEGE OF BUSINESS, PEACE, LEADERSHIP, AND GOVERNANCE

NCIS 407: ENTERPRISE ARCHITECTURE

END OF SECOND SEMESTER EXAMINATION

APRIL 2023

LECTURER: MR MUKHALELA

DURATION: 3 HRS

INSTRUCTIONS TO CANDIDATES

1. This paper carries **6** questions.
2. Answer **All** questions from **section A (Practical using a Lab allocated computer),** Save your answer in a folder on your desktop, its name should be your Student ID+ Course Code eg 20120234NCIS407.
3. Answer any **2 (two)** from **section B** questions **use Exam provided Answer booklet in the section.**
4. Each question carries 25 marks.
5. The marks for each question are indicated in square **[]** brackets.

Section A

Question 1

Quick Bites is a fast food restaurant. They use a computer to take customers' orders a computer system to deal with taking customer orders, assembling the order and then paying for it. The waiter takes their order. The waiter goes to the nearest till and keys in the order using a touch screen with icons on it showing possible food combinations. The table number is used to identify the order. In the kitchens a cook reads the order on his screen, assembles the meal on a tray, and prints a chit with the table number on it plus the details of the Order. The tray is put in the food lift and the cook presses a key to indicate that the order is ready. A large screen in the restaurant displays a list of orders that are ready, identified by table number. The waiter collects the tray from the food lift and takes it to the customer. He also removes the order from the large order screen. When customers have finished their meal the waiter keys the table number into the system and the bill is printed. The waiter takes the customer payment and records the bill as paid.

Required: Draw a use case diagram of this system. Include some extend and include relationships in your diagram. [25]

Question 2.

Draw class diagrams using ArgoUML to show the following classes: Automobile, headlamps, and sedan.

On the class diagram demonstrate some of the following elements often shown on such diagrams;

Class Diagram Elements

• generalization • composition • public attribute • object return type • aggregation • public operation • private attribute • exception • multiplicity • private operation • class name • visibility modifier • realization • stereotype • primitive attribute • protected operation • dependency

NB: Not all elements are to be shown on your diagram. [25]

Section B

Question 3

    a. Elucidate in detail what each of these terms used in Enterprise Architecture imply:

    (i)   Business intelligence

(ii)   Interoperability

(iii)   Robust systems   [9]

d. Protyping is a useful development strategy, define Prototyping and demonstrate how a Through-away prototype is useful to an Enterprise Architect.   [4]

e. Identify the steps involved when prototyping.   [4]

f. An organisation is considering harnessing Cloud computing (CC) for its new operational site, advise them on how they can use the folowing packages that comes with CC:

  (i) PaaS

  (ii) IaaS

  (iii) HaaS

  (iv) SaaS   [8]

Question 4

   a. You have been asked to solve the challenge of a crawling website at your company and your senior has suggested harnessing the following strategies;

(i)   Load balancing   [5]

(ii)   Search engine optimization   [5]

   b. Software –object –oriented architecture is now a common way of achieving integrated system in most enterprises, explain briefly how this strategy can assist you as a middleware developer.   [15]

Question 5

Agile development has been a great choice for most enterprise architecture solutions, and some of the solutions include but not limited to the following:

(i)   Joint-Application Development   [5]

(ii)   SCRUM   [5]

(iii)   Pair Programming   [5]

(iv)   Xtreme Programming   [5]

(v)   Iterative and incremental development   [5]

Question 6

Draw an ERD for the Solomon's Enterprise business that is now getting into the premixed concrete supply business venture in the construction industry. Include the following 8 entities for your diagram: Concrete-Type, Raw-material, Supplier, Bill of material, Order, Truck, Customer and Employee.   [25]

End of Examination.