



ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE

FACULTY OF ENGINEERING

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

SEMESTER II EXAMINATION, 2016/2017 ACADEMIC SESSION

COURSE TITLE: INFORMATION SYSTEMS ANALYSIS AND DESIGN

COURSE CODE: EEE 324

EXAMINATION DATE: 31ST JULY 2017

COURSE LECTURER: DR B. S. AFOLABI

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HOD's SIGNATURE

TIME ALLOWED: 2½ HRS

INSTRUCTIONS:

1. ATTEMPT ALL QUESTIONS IN SECTION A AND ANY THREE QUESTIONS IN SECTION B
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE NOT ALLOWED TO BORROW CALCULATORS AND ANY OTHER WRITING MATERIALS DURING THE EXAMINATION.
4. STATE CLEARLY THE COMBINED STOPPING CONDITIONS USED IN YOUR SOLUTIONS

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Section A (attempt all questions in this section)

- 1) What is Analysis model? a) Understanding of design problem b) Representation of design problem solution c) Representation of design problem d) All of the mentioned
- 2) Which of the following is true? a) A class model is representation of objects in a problem or a software solution b) A object model is representation of classes in a problem or a software solution c) All of the mentioned d) None of the mentioned
- 3) Which of the following is true? a) Class Diagram are graphical form of class models b) Object Diagram are graphical forms of object models c) All of the mentioned d) None of the mentioned
- 4) Which of these are types of class model used in object oriented analysis? a) Analysis Class models/ Conceptual Models b) Design Class Models c) Implementation Class Models d) All of the mentioned
- 5) Which of the following represents the use of Conceptual models during product design? Understanding the problem design b) Setting Data Requirements c) Validating Requirements d) All of the mentioned
- 6) Which of the following represents the use of Conceptual models during engineering design? a) Understanding product design b) Under Girding Engineering Modelling c) All of the mentioned d) None of the mentioned
- 7) What are Design Class Models? a) They show classes in a software system b) They represent attributes, operations, association in abstraction from language. c) They show implementation details d) All of the mentioned
- 8) Conceptual models are useful for which of the following reasons? a) Understanding problem design b) Data Requirements and Product design c) Validating requirements d) a,c e) All of the mentioned
- 9) Which of the following property is associated with objects? a) State b) Behavior c) Identity d) All of the mentioned
- 10) Which of the property of a object encompasses all of the (usually static) properties of the object plus the current (usually dynamic) values of each of these.
a) Semantics b) Behavior c) State d) Identity
- 11) The following is an example of
Struct PersonnelRecord
{
char name[100];
int socialSecurityNumber;
char department[10];
float salary;
};
a) Objects b) Class c) Both a and b d) None of the mentioned
- 12) Which of the following object types are generally autonomous, meaning that they can exhibit some behavior without being operated upon by another object
a) Passive b) Active c) Both a and b d) None of the mentioned
- 13) A _____ is a description of a set of objects that share the same attributes, operations, relationships, and semantics.
a) Structure b) Class c) Constructor d) Function
- 14) A _____ is a special member function whose task is to initialize the objects of its class.
a) Constructor b) Destructor c) Selector d) Iterator
- 15) Which of the following statements about a constructor is not true?

- a) We cannot refer to their addresses. b) They cannot be inherited, though a derived class can call the base class constructor. c) An object with a constructor can be used as a member of a union. d) Constructors cannot be virtual.
- 16) The constructors that can take arguments are called _____
a) Default Constructor b) Copy Constructor c) Parameterized Constructor d) Dynamic Constructor
 - 17) When an object is created and initialized at the same time, a _____ constructor gets called.
a) Inline Constructor b) Copy Constructor c) Default Constructor d) Parameterized Constructor
 - 18) Destructor is defined as _____ a) Const matrix X(m, n); b) matrix:: ~matrix(){ } c) matrix:: matrix(void)
d) matrix()
 - 19) Which of the following is not a diagram studied in Requirement Analysis?
a) Use Cases b) Entity Relationship Diagram c) State Transition Diagram d) Activity Diagram
 - 20) How many feasibility studies is conducted in Requirement Analysis?
a) Two b) Three c) Four
 - 21) How many phases are there in Requirement Analysis?
a) Three b) Four c) Five d) Six
 - 22) Traceability is not considered in Requirement Analysis.
a) True b) False
 - 23) Requirements analysis is critical to the success of a development project.
a) True b) False c) Depends upon the size of project
 - 24) _____ and _____ are the two issues of Requirement Analysis.
a) Performance, Design b) Stakeholder, Developer c) Functional, Non-Functional
 - 25) The requirements that result from requirements analysis are typically expressed from one of three perspectives or views. What is that perspective or view?
a) Developer b) User c) Non-Functional d) Physical
 - 26) Requirements Analysis is an Iterative Process.
a) True b) False
 - 27) Coad and Yourdon suggested _____ selection characteristics that should be used as an analyst considers each potential object for inclusion in the requirement analysis model.
a) Three b) Four c) Five d) Six
 - 28) Requirements should specify 'what' but not 'how'.
a) True b) False
 - 29) The Unified Modeling Language (UML) has become an effective standard for software modelling. How many different notations does it have?
a) Three b) Four c) Six d) Nine
 - 30) Which model in system modelling depicts the dynamic behaviour of the system?
a) Context Model b) Behavioral Model c) Data Model d) Object Model

Section B (attempt any THREE questions in this section)

Question 1

A real estate in the federal government cosponsored a data warehouse with the IT department. A formal proposal was written by the IT department in which costs were estimated to be ₦8, 000, 000, the project duration was estimated to be eight months, and the responsibility for the funding was defined as the business unit's. The IT department proceeded with the project before hearing whether the proposal was ever accepted.

The project actually lasted two years because requirements gathering took nine months instead of one and a half, the planned user base grew from 200 to 2,500, and the approval process to buy technology for the project took a year. Three weeks prior to technical delivery the IT Director cancelled the project. This failed endeavour cost the organisation ₦25, 000, 000.

- a) Why did this system fail?
- b) Why would a company spend money and time on a project and then cancel it?
- c) What could have been done to prevent this?

Question 2

- a) You are required to build a product for determining whether a bank statement is correct. The data needed include the balance at the beginning of the month; the number, date and amount of each check; the date and amount of each deposit; and the balance at the end of the month. Explain how you would ensure that as many modules as possible of the product can be reused in future products.
- b) What is the connection between inheritance and generalization?
- c) What is the connection between aggregation and association

Question 3

Consider an automated library circulation system. Every book has a bar code, and every burrower has a card bearing a bar code. When a burrower wishes to check out a book, a librarian enters C at the computer terminal, then scan the bar codes on the book and the burrower's card. Similarly, when a book is returned, a librarian enters R and the book is again scanned. Librarians can add books (+) to the library collection or remove from them (-). Librarians and burrowers can go to a terminal and determine all the books in the library by a particular author (the librarian or burrower enters A= followed by the author's name), all the books with a specific title (T= followed by the title), or all the books in a particular subject area (S= followed by the subject area). Finally, if a burrower wants a book currently checked out, a librarian can place a hold on the book so that, when it is returned, it will be held for the burrower who requested it (H= followed by the number of the book). Draw the use-case diagram of the library information system and give descriptions of the use cases.

Question 4

- a) Would adopt a SDLC for developing a small application on a PC? Would you modify it in any way? Give reasons for your answer.
- b) Database designer has complained about plans to construct a logical model for a video club that also deals with audio tapes, music on CDs and loan out books. He believes we should just design the database using the database management system. Give three reasons why requirements should be specified in an implementation-independent manner. What would you be looking out for in the requirement analysis if you think it is essential for the designer's work
- c) Make a list of traits that a system analyst should have.
- d) What are the various elements of system?