ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD

(Department of Computer Science)

WARNING

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: OO Analysis and Design (3464) **Semester: Autumn, 2012**
Level: BS (CS) **Total Marks: 100**

ASSIGNMENT No. 1

Note: All questions are compulsory and carry equal marks.

Q. 1 Define and explain the following, use suitable example to support your answer:

i) Class ii) Constructor
iii) Modifiers iv) Inheritance

Q. 2 a) Explain the concept of Object Oriented Modelling? Discuss different UML notations used for Object Oriented Modelling?

b) Why we shifted from structured programming to Object Oriented programming?

Q. 3 a) Generalization and Specialization are related terms that are used in Object Oriented Methodology. Differentiate these terms with the help of example?

b) What is data dictionary? Explain the importance of data dictionary.

Q. 4 a) Define and explain the three models (Object Model, Dynamic Model and Functional Model) used in Object Oriented Modelling?

b) Polymorphism is an important feature of Object Oriented programming, how does it differ from Inheritance?

Q. 5 What is Aggregation? Differentiate between 1-way and 2-way association with example for each.

ASSIGNMENT No. 2

Total Marks: 100

Note: All questions are compulsory and carry equal marks.

Q. 1 a) What is a state diagram? Discuss different operations of state diagram with the help of example.
b) Briefly explain the concept of dynamic modelling.

Q. 2 a) What is a constraint? How do we specify a constraint in DFD?
b) Draw a DFD for library management software?

Q. 3 a) What is OMT? Explain different phases of OMT.
b) How OMT methodology is different from other methodologies?

Q. 4 a) What is system design? How do we allocate sub-system to a Processor?
b) Explain the handling of global variables in system design?

Q. 5 Select a software system as specified by your Instructor. Discuss Object Oriented analysis and design of your system.

Object Oriented Analysis and Design Credit Hours: 3(3+0)

Recommended Book:
Object Oriented Modeling and Design by James Raumbaugh

Course Outlines:

Unit–l: Introduction
Introduction & Definitions, OO Modeling Concepts, OO Developments

Unit–2: Modeling as a Design Technique
Object Modeling Technique

Unit–3: Object Modeling
Objects & Class, Links & Associations, Generalization & Inheritance, Grouping Constructs, Aggregation, Abstract Class, Multiple Inheritance, Meta Data, Candidate Key

Unit–4: Dynamic Modeling
Events & States, Operations, Nested State Diagram, Concurrency, Advanced Dynamic Modeling Concepts

Unit–5: Functional Modeling

Functional Models, DFD, Specifying Operations, Constraints, Relation of Functional to Object and Dynamic Model

Unit–6: Design Methodology

Methodology Review, OMT as Software Engineering Methodology, OMT Methodology, Impact of OO Approaches

Unit–7: System Design

Overview of System Design, Breaking of System into Sub Systems, Identifying Concurrency, Allocating Subsystems to Processors and Tasks, Management of Data Store, Handling Global Resources, Choosing Software Control Implementation, Handling Boundary Conditions, Setting Trade-Off Priorities, Common Architectural Framework, Architecture of ATM System

Unit–8: Implementation

From Design to Implantation, Implementation Using Programming Languages, Implementation Using Database System, Implementation Using Outside a Computer

Unit–9: Object Diagram Compiler

Background, Problem Statement, Analysis, System Design, Object Design, Implementation

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