ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Computer Science)

Course: Object Oriented Analysis and Design (3464)   **Semester: Autumn, 2013**
Level: BS (CS)   **Total Marks: 100**
Pass Marks: 40

ASSIGNMENT No. 1

Note: All questions are compulsory and carry equal marks.

Q. 1 Define and explain the following:

    i)   Class   ii)   Object
    iii)   Polymorphism   iv)   Inheritance

Q. 2 a)   What is object oriented modelling? Give detailed description of the processes involved in object oriented modelling.

      b)   How is object oriented diagram different from ER diagram?

Q. 3 a)   Differentiate between the terms Generalization and Specialization. Explain with an example the close association between Generalization and Inheritance?

      b)   Compare Object Oriented Analysis for software development with structured analysis?

Q. 4 a)   Give three differences between Object Model, Dynamic Model and Functional Model. Out of these models, which model is the most important and why?

      b)   What are integrity constraints? Briefly discuss the types of integrity constraints.

Q. 5 a)   What is association? Differentiate between 1-way and 2-way association with examples for each.

      b)   Differentiate between multiple and multi-level Inheritance with the help of example?

ASSIGNMENT No. 2

Total Marks: 100   **Total Marks: 40**

Note: All questions are compulsory and carry equal marks.

Q. 1 a)   What is a state diagram? Explain how a state diagram is represented using an example.
       b)   Briefly explain advanced dynamic modelling concepts?

Q. 2 a)   What is the purpose of using a functional model? Give an example of functional model.
       b)   Draw and explain a DFD for ATM Machine? Also explain the basic notations of DFD?

Q. 3 a)   What is OMT? Explain different phases of OMT.
       b)   Draw OMT object model for the Registration system of a university?

Q. 4 a)   What is system design? Why we need to break system into sub system.
       b)   Explain the transformation process from design to implementation?

Q. 5 Define and explain each of the following:
       i)   Management of data Store   ii)   Architecture of ATM System
       iii)   Problem Statement   iv)   Object Diagram Compiler

Object Oriented Analysis and Design (3464)   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 Approach

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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