E 8230

M.C.A. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Third Semester

CA 233 — OBJECT ORIENTED ANALYSIS AND DESIGN

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What is meant by Inheritance? Explain with a suitable example from a real programming problem.

2. Explain information and implementation hiding with a suitable example.

3. What are the different models used in OMT?

4. What do you mean by Macro Development process and micro development process?

5. What does a UML? Use case diagram signify.

6. What is a state chart diagram in UML? How does it differ from UML activity diagrams?

7. Explain the key features of the spiral model for software development.

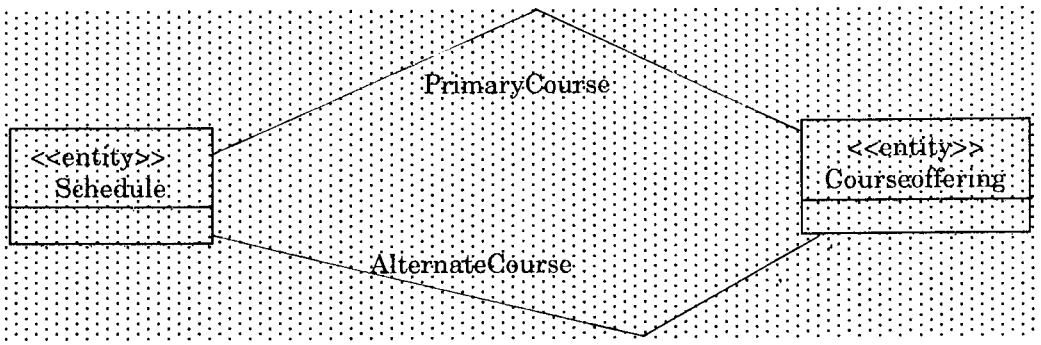
8. Why lines of code (LOC) is not a good measure for estimating the effort for software development projects?

9. Components reduce the software development time to a great extent. Justify.

10. What is meant by server side programming? Give an example.

PART B — (5 × 16 = 80 marks)

11. (i) Explain whether the following UML Class diagram is correct or not. Justify. (5)



(ii) Suppose that a computer is built out of one or more CPUs, sound card and video card. If we model the system representative classes draw the class diagram (relationship and multiplicity) among the following classes. Computer, CPU, soundcard, video card. (5)

(iii) Draw class inheritance diagram that captures the two categories of a company's customers: external customers, who are other companies, and internal customers, which are all the divisions within the company. (6)

12. (a) (i) When is it appropriate to model with composition? For example, why not use the UML composition notation to show that a dog is composed of height, weight, colour and date of birth? (6)

(ii) Draw the state chart diagram showing the activities to be performed while operating an ATM machine for cash transactions. (10)

Or

(b) Draw an object-aggregation diagram for a book chapter with the following structure : A chapter comprises several sections, each of which comprises several paragraphs and figures. A paragraph comprises several sentences, each of which comprises several words. (16)

13. (a) (i) Explain the importance of using design patterns for development of software. (6)

(ii) Explain any four design patterns with suitable examples. (10)

Or

(b) (i) Explain association, composition and aggregation with suitable examples. (8)

(ii) Explain the different implementation diagrams in UML. Give examples. (8)

14. (a) (i) What are the advantages and disadvantages of using OOAD? (6)

(ii) What is object oriented analysis? Explain the various steps involved. (10)

Or

(b) (i) Differentiate between black box and white box testing. Discuss the applicability of both the types of testing. (10)

(ii) What is meant by cyclomatic complexity? How it aids testing? (6)

15. (a) (i) What are object oriented databases? Why are they required? (6)

(ii) Explain two tier and three tier architecture for client server systems in detail. (10)

Or

(b) (i) What is meant by distributed objects computing? (6)

(ii) Write short notes on any TWO of the following : $(2 \times 5 = 10)$

(1) CORBA

(2) Mobile agents

(3) Rational Suite.
