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**MCA**  
**PCS 3004**

**Fourth Semester Examination – 2008**

**SOFTWARE ENGINEERING AND OOAD**

**Full Marks – 70**

**Time : 3 Hours**

*Answer Question No. 1 which is compulsory  
and any **five** from the rest.*

*Figures in the right hand margin  
indicate marks.*

1. Answer the following questions : 2×10
- (a) What do you mean by a software process ?
- (b) What do you mean by the term phase containment of errors ?

- (c) Which are the 7 standard Software Quality Characteristics ?
- (d) Define CASE tools and CASE environment.
- (e) What is stress testing ?
- (f) What is the use of Use case diagram in Software Design ?
- (g) What do you mean by the term software reverse engineering ?
- (h) Define and differentiate between corrective maintenance and perfective maintenance.
- (i) What is the new COCOMO-II formula for calculating project effort ?
- (j) What do you understand by a layered software design ?

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**Contd.**

2. (a) What is a prototype ? Under what circumstance is it beneficial to construct a prototype ? 5
- (b) Who are the different users of SRS document ? What are their expectations from the SRS document ? 5
3. (a) Discuss how the effort spent in the different phases of the iterative waterfall model is spread over time ? 5
- (b) What do you mean by unit testing ? When and why unit testing is used by the system designer and programmer ? 5
4. (a) Explain *coupling* and *cohesion* in the context of software design. Describe the types of *coupling* and *cohesion*. 5
- (b) How can management organization and the systematic application of methods increase the chance that a development project will succeed ? 5
5. (a) What are the features of good software design ? Can quality be measured ? 5
- (b) Explain the various steps in cost estimation procedure using COCOMO. 5
6. (a) Development methods involve building models to describe the system being investigated. What are the three kinds of model developed during object-oriented analysis and design ? 5
- (b) Discuss the relative merits of ISO 9001 certification and the SEI CMM-based quality assessment. 5

7. (a) Difference between alpha testing and beta testing. 2.5
- (b) Difference between software validation and verification. 2.5
- (c) Differentiate between nCASE environment and CASE tools. 2.5
- (d) Differences between object oriented and function oriented design. 2.5



8 “A system is required to maintain an inventory of the contents of a warehouse. Items are delivered for storage at any time during the day and must be allocated space. An identification label must be attached to each item before storage and some items need to be stored in a

refrigerated unit. An item can be stored for any period of time but some items have an expiry date by which they must be removed from the warehouse.

When items are removed they need to be labelled, packaged for delivery and put on the correct delivery truck. The truck driver should be given a list of delivery addresses for the items.

The system should be able to generate reports showing the current contents of the warehouse and the last day's deliveries and collections.”

- (a) Taking an object-oriented point of view, draw up a list of potential classes, attributes and external entities using the specification above as a guide.

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- (b) Starting with the classes you have identified in part [I], generate a class diagram for the warehouse software system. Make sure each class is labelled with any key attributes or operations. 5

