

**ADCA / MCA (II Yr)**  
**Term-End Examination**  
**December, 2008**

**CS-10 : SOFTWARE ENGINEERING**

Time : 3 hours

Maximum Marks : 75

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**Note :** Question number 1 is **compulsory**. Answer any **three** questions from the rest.

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1. (a) Income Tax department wants to automate its system. It has the following requirements :
- Filing of annual IT forms through Internet
  - Filing of PAN card form through Internet
  - On-line discussion form to handle different queries
- (i) Specify the three use-cases. 6
- (ii) Identify the classes and prepare the class diagram for it. 6

- (b) What is project scheduling ? Explain at least three functions associated with project scheduling. 4
- (c) Explain COCOMO model. 6
- (d) How does process affect a product ? Also, write two differences between a process and a product. 3
- (e) What is the importance of software documentation standards ? List any three standards. 5
2. (a) How is re-engineering different from reverse engineering ? Explain the restructuring technique for re-engineering with the help of an example. 7
- (b) List various McCall's Quality Factors. What do you understand by Function-Based Metrics ? Explain with example. 8
3. (a) Justify the following statements : 10
- (i)  $MTBF = MTTF + MTTR$
- (ii) Software Availability =  $[MTTF / (MTTF + MTTR)] \times 100\%$
- (b) List any five principles for data specification used in data design at the component level. 5

4. Consider an Examination System for a school. It performs the following operations.

- Seating-plan generation and room allocation for students and invigilators.
- Maintaining records of different courses, student attendance and evaluators.
- Distributing and collecting answer scripts to/from different evaluators.
- Maintaining/Displaying student marks.

Based on the above specification, answer the following :

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|---|---|
| (a) Prepare SRS document for this system.                 | 4 |
| (b) Design and draw DFDs upto two levels.                 | 6 |
| (c) Design a complete ER diagram with various components. | 5 |

5. Write short notes on the following : 5×3=15

- (a) Software Quality Assurance
- (b) Data Coupling
- (c) Cost Benefit Analysis
- (d) Decision Tree
- (e) Risk Management

