

**ADCA / MCA (II Yr)**  
**Term-End Examination**  
**June, 2007**

**CS-10 (S) : 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) Some university wants to automate its registration, examination and attendance system of students. The main objectives of the software are :
- On-line record of students
  - On-line examination system
  - On-line record of classes and teachers
  - On-line attendance system (to be filled by teachers)

For the above-mentioned system

- (i) Develop a Software Requirement Specification.
- (ii) Design DFD upto two levels.
- (iii) Construct the structure chart for this system.
- (iv) Suggest the testing strategy for any two software modules in (iii) above.

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- (b) What is software metrics ? Explain the various metrics for software productivity and quality. 7
- (c) How does a 'process' affect a 'product' ? 3

2. (a) Consider the program code given below :

```
void main( )
{ int gcd (a, b)
  int a,b;
  {
    while(a!= b)
    {
      if(a>b)
        a = a-b;
      else
        b = b-a;
    }
    return (a)
  }
}
```

- (i) Draw the control flow graph. 9
- (ii) Arrive at the cyclomatic complexity. 9
- (iii) Arrive at the test cases. 9
- (b) Draw and explain the typical phases of waterfall model. Also, explain the associated development tools in each phase. 6

3. (a) Suppose that you are asked to build a network based Leave Management System for a company. Develop an Entity-Relationship Diagram that describes data-objects, relationships and attributes. 6
- (b) What is COCOMO ? Explain how productivity is computed in 'COCOMO-II' model. 6
- (c) What is regression testing ? When is it used ? 3
4. (a) What is software prototyping ? Explain 'throw-away' and 'evolutionary' prototyping approach. 6
- (b) What are the different roles of a system analyst ? Explain. 6
- (c) What is LOC based estimation ? Explain with an example. 3
5. (a) Answer the following questions in brief : 9
- (i) Explain any three factors that affect the software quality.
- (ii) What is size-oriented metrics ? What are its advantages ?
- (iii) What is Software Configuration Management ?
- (b) Explain the following : 6
- (i) Software Reliability
- (ii) Temporal Cohesion
- (iii) Statistical Quality Assurance

