B. Tech.

(SEM. IV) EXAMINATION, 2006-07

SOFTWARE ENGINEERING

Time : 3 Hours] [Total Marks : 100

Note : Attempt all questions.

1 Answer any four parts:

(a) Define the term software. Describe its various characteristics.

(b) What is a flow chart? How is the flow charting techniques useful for software development?

(c) Define software crisis. What are possible solutions to the present software crisis?

(d) Explain why programs which are developed using evolutionary development are likely to be difficult to maintain?

(e) Define the following:
   (i) Waterfall model
   (ii) Spiral model.

(f) Explain software development life cycle. Discuss various activities during SDLC.

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2 Answer any four parts : 
(a) Software requirement analysis is unquestionably the most communication – intensive step in the software engineering process. Why does the communication path frequently break down?
(b) Describe five desirable characteristics of a good software requirement specification document.
(c) Who should be involved in a requirement review? Draw a process model showing how a requirements review might be organized?
(d) Compare ISO and SEI-CMM models.
(e) Describe three principle activities involved in software quality management.
(f) Draw the complete DFD at least up to 2-levels for a library management system.

3 Answer any two parts : 
(a) Define software architecture. Explain why it may be necessary to design the system architecture before the specifications written with example. Compare function oriented and object oriented designs.
(b) What do you mean by the terms cohesion and coupling in the context of software design? How are these concepts useful in arriving at a good design of a system?
(c) For the following ‘C’ program estimate the Halstead’s length and volume measures. Compare Halstead’s length and volume measures of size with LOC measure.
/* Program to calculate GCD of two numbers*/
int compute-gcd (x,y)
   int x, y;
    
    {                      
        while (x ! = y)
           if (x > y) then x = x-y;
           else y = y-x;
        return x;
    }

4 Answer any two parts :  
(a) Discuss the differences between black-box and structural testing and suggest how they can be used together in the defect testing process.
(b) Show, using a small example, why it is practically impossible to exhaustively test a program.
(c) (i) Distinguish between error and failure. Which of the two is detected by testing? Justify.
(ii) Explain formal technical reviews (Peer reviews).

5 Answer any two parts :  
(a) Using a schematic diagram and suitable example show the order in which the following are estimated in the COCOMO estimation technique: cost, effort, duration, size.
(b) What do you mean risk management? Explain how to select the best risk reduction technique when there are many ways of reducing a risk?
(c) Define the following:-
   (i) Software Maintenance
   (ii) Structure of CASE Tools.

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