2011

M.Sc.

2nd Semester Examination

COMPUTER SCIENCE

PAPER—CS-204

Full Marks : 40

Time : 2 Hours

The questions are of equal value.

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

MODULE—1

(SYSTEM ANALYSIS AND DESIGN)

(Marks : 20)

Answer any *two* questions.

1. (a) What tasks are performed by System Analyst ? Describe the concept of a system.

   (b) Explain the need of feasibility study before taking up the task of system design. What is SDLC ?

   $(3+2)+(3+2)$

(Turn Over)

2. What is context Diagram ? Explain top level DFD diagram with example.

What are the difference between Flowcharts and Data Flow diagrams ? What are the difference between logical and physical DFD ?

2+3+3+2

3. (a) What is E–R diagrams ? What are the symbols used in it ?

   (b) What is Prototyping ? What is decision tables ? What is decision trees ?

(1+4)+(1+2+2)

4. Write short notes on (any *two*) :   **5×2**

   (i) Management Information System.

   (ii) Decision Support System.

   (iii) Quality assurance.

   (iv) Capability maturity models.

5. (a) What are CASE tools ? How are they helpful in SDLC ?

   (b) What is the difference between cohesion and coupling ? What are the different types of coupling that may exist between two modules ?

3+2+3+2

(SOFTWARE ENGINEERING)

(*Marks : 20*)

Answer any *two* questions.

1. (a) What do you understand by software reliability ? Define the following terms : MTTF, MTTBR, ROCOF.

    $2+2\times3$

   (b) What is the difference between a "Known risk" and "Predictable risk" ?   2

2. (a) What is SRS ? Briefly explain the characteristics of a good SRS.   2+4

   (b) Design a white Box Test suit for the following code :

   int gcd (int x, int y

   ```
   {  while (x ! = y)
      {  if (x > y)
            x = x - y ;
         else
            y = y - x ;
      }
      return x ;
   }
   ```

4

3. (a) Consider a project with the following functional units :

No of inputs = 10, No of outputs = 5 No of external queries = 6 No of inputs files = 9 No of external interface files = 16 and degree of influence = 49.

Taking all these functional units as average find the function print of the project. 4

(b) What are the differences among measure, measurement and metric ? 2×3

4. (a) Differentiate between structure analysis and structure design in the context of function oriented design.

(b) What do you mean by balancing a DFD. Illustrate your answer with suitable example.

(c) Draw a level one DFD of a Restaurant Management System along with context diagram & E–R diagram. 3+3+4

5. (a) What do you mean by software process. What problems will a software development house face if it does not follow any systematic process in its software development efforts. 2+3

(b) When does the project planning activity start and ends in a software life cycle. What are the different categories of software development projects according to the COCOMO estimation model. 2+3