Roll No. ....

Total No. of Pages : 3

BT6/M11   8610

Software Engineering

Paper—IT-354, Option—II

Time : Three Hours]   [Maximum Marks : 100

Note :—Attempt FIVE questions in all, selecting at least ONE question from each unit.

UNIT—I

1. (a) What do you understand by term 'Software Crisis' ? Explain. 6

   (b) List three software process metrics and explain briefly. 6

   (c) Explain the working of spiral model. What work of a software project is completed in each phase of the spiral ? Explain with help of an example. 8

2. (a) Suppose a system for office automation is to be developed. It is clear from requirements that there will be five modules of size 0.5 KLOC, 1.5 KLOC, 2.0 KLOC, 1.0 KLOC, and 2.0 KLOC respectively. Complexity and reliability requirements are high. Programmer's capability and experience is low. All other factors are of nominal rating. Use COCOMO model to determine the cost and schedule estimates. Also calculate the cost and schedule estimates of different phases. Assume all other required data. 10

   (b) Explain project scheduling and tracking methods. 10

UNIT—II

3. (a) The MUSIC WORLD video cassette company receives orders from video cassette libraries. Firstly, it is checked whether the cassettes ordered are being sold by the company, the details of which are present in the cassette master file. A valid order is then filed in the pending orders file and the customers details are filed in the customer file. The orders are then processed by checking for availability of the required quantity in the cassette availability file. The cassettes are then shipped to the libraries along with the invoice and the cassette availability file is updated. A copy of the invoice file is stored in the invoice file. Draw and explain the context level and first level DFD. 15

   (b) Describe briefly behavioral modeling. 5

4. (a) What do you understand by software architecture ? How alternate architecture designs are analyzed ? 6

   (b) How data flow is mapped into a software architecture ? Discuss in detail. 14

UNIT—III

5. (a) Differentiate between white box and black box testing approach. 5

   (b) Write a program to find largest of three numbers. Design set of test cases for its boundary value analysis. Also develop a decision table for this program. 3+4+4=11

   (c) Define validation testing. 4

6. (a) Define reverse engineering and re-engineering. Differentiate between the two. 3+3=6

   (b) Define recovery testing, stress testing, performance testing. 9

   (c) What do you understand by debugging ? What are various methods of it ? Explain each briefly. 5

UNIT—IV

7. (a) Define software reliability. Explain how it is related to :

   (i) failure intensity

   (ii) fault density

   (iii) MTTF.

(b) What are CASE Tools ? For which phases of software development, CASE tools are useful ? Justify. 8

8. (a) Explain statistical software quality assurance method. 10

(b) Describe ISO 9000 quality standards. 5

(c) List and briefly explain important review guidelines from software quality viewpoint. 5