Or

Consider the program for the determination of next date in calendar. Its input is a triple of day, month and year with the following range

$1 \leq$ month ≤ 12

$1 \leq$ day ≤ 31

$1900 \leq$ year ≤ 2025

The possible output would be next date or invalid date. Design boundary value, robust and worst test cases for this programs. **12**

13. (a) Define module coupling and explain different types of coupling. **6**

(b) Explain the steps of software maintenance with the help of a diagram. **5**

Or

Write short notes on the following :

(a) Decision Table Based Testing **4**

(b) Reverse Engineering **4**

(c) Risk Management. **3**

Subject Code—0415

M.C.A. (Third Year) EXAMINATION

(5 Years Integrated Course)

(Batch 2009 Onwards)

SOFTWARE ENGINEERING

MCA-303

Time : 3 *Hours* *Maximum Marks :* 70

Section A

Note : Attempt any *Seven* questions. **7×5=35**

1. Discuss the various stages of Software Development Life-Cycle.

2. What is more important : Product or Process ? Justify your answer.

3. Explain the spiral model of software development. What are the limitations of such a model ?

4. Define data structure metrics. How can we calculate amount of data in a program ?

5. Explain the Putnam resource allocation model. What are the limitations of this model ?

6. What do you understand by the term "requirements elicitation" ? Discuss any *two* techniques in detail.

7. Discuss the objectives of software design. How do we transform an informal design to a detailed design ?

8. Write a short note on Logarithmic Poisson Execution time model.

9. What is Cyclomatic Complexity ? Explain with the help of an example.

10. What is Software Maintenance ? Describe various categories of maintenance.

Section B

Note : Attempt all the questions.

11. Explain all the levels of COCOMO model. Assume that the size of an organic software product has been estimated to be 32,000 lines of code. Determine the effort required to developed the software product and the nominal development time.

Or

Discuss the relative merits of ISO9001 certification and the SEI CMM based evaluation. Point out some of the shortcomings of the ISO9001 certification process as applied to the software industry. **12**

12. Draw a DFD for result preparation automation system of B. Tech. courses (or MCA program) of any university. Clearly describe the working of the system. Also mention all assumptions made by you.