



Name :

Roll No. :

Invigilator's Signature :

CS/M.Tech (CSE)/SEM-1/MTCSE-14/2011-12

2011

ADVANCED SOFTWARE ENGINEERING

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

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

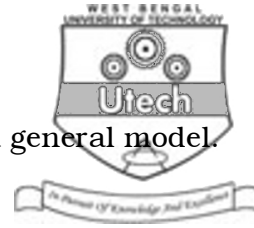
Group – A

(Short Answer Type Questions)

Answer any *five* questions.

5 × 5 = 25

1. Briefly describe the system engineering process with the help of a block diagram.
2. Make a comparison on Rational Unified Process and Spiral Process in Software Engineering.
3. Explain Requirement Engineering process. What is the use of Requirement spiral ?
3 + 2
4. Explain User interface design process.



5. Explain software testing process through a general model.
6. Consider the following program :

```
int compute ged (int x, int y)

{

    while(x != y)

    {

        If (x > y ) then

            x = x -y;

        else

            y = y - x;

    }

    return x;

}
```

Draw the control flow graph and find the cyclomatic complexity of the above program. 3 + 2

7. Explain why testing can detect the presence of errors, not their absence. What do you understand by Cleanroom strategies for software development ? 2 + 3

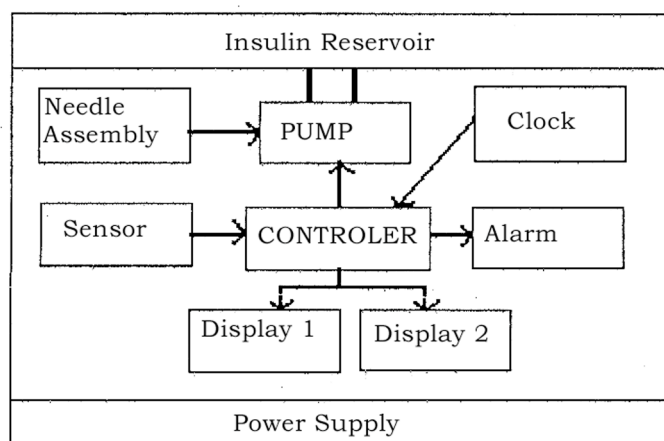
**Group – B****(Long Answer Type Questions)**Answer any *three* questions.

3 × 15 = 45

8. For the following scenario identify the functional requirements, draw usecase, sequence and class diagram :

A supermarket needs to develop the following software to encourage regular customers. For this, the customer needs to supply his/her residence address, telephone number, and the driving license number. Each customer can present his CN to the check out staff when he makes any purchase. In this case, the value of his purchase is credited against his CN. At the end of each year, the supermarket intends to award surprise gifts to 10 customers who make the highest total purchase over the year. Also, it intends to award a 22 carat gold coin to every customer whose purchase exceeded Rs. 10,000. The entries against the CN are the reset on the day of every year after the prize winners' lists are generated.

9. a) Write the difference between functional requirements and domain requirements with examples. 4
- b) Identify the risks and make a fault tree analysis of the given safety critical system : 8





- c) What are the different organizational styles in Software Design Phase ? 3
10. a) Explain why program inspections are an effective technique for discovering errors in a program. 7
- b) Do you think a test plan is essential for software testing process ? Justify. Explain about the essential components of a test plan. 2 + 6
11. What factors should be taken into account when selecting staff to work on a software development project. Give reasons for your answer. As a project manager in a company for software development related to alarm systems suggest what skills and attributes you will look for while selecting a lead team of 6 developers. 9 + 6
12. Explain P-CMM. What are the strategic objectives of P-CMM ? Why is P-CMM an effective framework for improving the management of people in an organization ?

6 + 5 + 4
