53 (CS 602) SWEN

2017

SOFTWARE ENGINEERING

Paper : CS 602

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer Question Nos. ***1, 2*** *and* ***any two*** *from the rest.*

1. Consider the following case study of our institute for the development of a software. Whenever a student gets admission, the student details (name, DOB, department, address, parents name) are entered in the system by the office clerk. On successful submission the system will generate unique roll no. At the beginning of every semester, students do online course registration by using his/her account. HOD of each department provides the details of the courses offered by the department.

HODs also provide the course-teacher details. Course teacher can check the student list, who took his/her course. Teacher can upload class attendance, mid term marks, assignment marks, end-term marks. At the end of semester teachers submit all the details to examination cell. Based on the exam results, exam controller prints the marksheet for each student.

(a) Design a suitable SPMP

(b) Design a SRS

(c) Create a DFD

(d) Design a structure chart.

10+15+15+10

2. Consider the following C program

```
int gcd (int x, int y)
{
    while (x!=y)
    { if (x>y)
        x=x–y ;
      else
        y=y–x ;
    }
    return x ;
}
```

Compute Halstead's length and volume.

10

3. Represent the following in the form of a decision tree and table.

Your library has three different members, faculty, staff and students. A book may be a text or reference book. Only text books can be issued. A faculty can issue up to 10 books for a year. A staff can issue 8 books for 6 months. A student can issue 6 books for 6 months. 20

4. *(a)* If a company has already experienced in developing library software for different institutions, which life cycle model they should use to develop a library software for another institution ? Justify your answer.

(b) What are the advantages of FP over LOC ? 10+10

5. *(a)* With suitable example discuss why high cohesion and low coupling is preferred in software product development ?

(b) Briefly discuss about the shortcomings of the DFD. 10+10

6. *(a)* Compare various characteristics of GUI and text-based user interface.

(b) Explain characteristics of a good user interface design. 10+10

7. *(a)* Explain the terms — error, failure, test case.

(b) With example discuss about equivalence class partitioning. 10+10