53 (CS-602) SWEN

2015

SOFTWARE ENGINEERING

Paper : CS 602

Full Marks : 100

Time : Three hours

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

*Answer **any five** questions.*

1. *(a)* With a clear diagram discuss briefly on the classical waterfall model for software development.

   (b) Why classical waterfall model is not a choice of the modern software developers.

   (c) Discuss on *any one* model that can overcome the problem of classical waterfall model. 10+5+5

2. *(a)* What are the problems of LOC as software metric ?

(b) Write down the procedures to compute the FP.

(c) Briefly discuss on basic COCOMO.

5+10+5

3. (a) Consider the following C program :

```
main ( )
  {
    int a, b, c, d, sum ;
  scanf ("%d%d%d%d", &a, &b, &c, &d);
  sum = (a+b+c+d) ;
  printf ("sum=%d", sum) ;
  }
```

Estimate the Halstead's length and volume.

(b) Suppose you are the project manager of a software project that consists of the following tasks :

Activity No.	Activity name	Duration (Weeks)	Immediate predecessor
1	Requirement analysis	5	—
2	Design	4	1
3	GUI coding	5	2
4	Database coding	4	2
5	Integration coding	3	2
6	Unit Testing	3	3, 4, 5
7	Integration Testing	8	6
8	Write User Manual	2	7

(i) Draw the activity network representation for the above problem.

(ii) Compute the critical path.

(iii) Draw a Gantt chart representation for the above problem.

5+(5+5+5)

4. Consider the following case study of Students' Academic Affair Management system — 20

(i) A set of courses are created by Dean academics. Each course has a unique course code, no. of credits and syllabus.

(ii) Students are admitted to courses. Each student's detail includes roll no., semester no., and the course registered for.

(iii) The marks of a student for various courses are entered by the Examination Controller.

(iv) Once the marks are entered, the SGP (Semester Grade Points) are calculated.

(v) The marks list are printed which contains SGP.

Design a suitable SRS for the above problem.

5. Design a suitable DFD for the library of your college. 20

6. *(a)* With suitable example, discuss about Equivalence class partitioning and boundary value analysis.

(b) Consider the following function for the computation of GCD :

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

Design a CFG and compute McCabe's Cyclomatic complexity. 10+10

7. Write short notes on : 4×5

(a) SPMP

(b) Delphi cost Estimation

(c) GUI *vs.* Text based Interface

(d) Coding standards.
