

Total number of printed pages-5

53 (CS 602) SWEN

2014

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) What is software development life cycle model ? 5
- (b) Briefly discuss about the different phases of waterfall model of software development. 10
- (c) Why waterfall model is not used by software industries ? 5

Contd.

2. (a) Why a project manager estimates the size of a project? How project manager estimates the size of a project using metrics? 2+8

(b) How Delphi cost estimation technique overcomes the problems of expert judgement technique? 5

(c) Briefly discuss about basic COCOMO. 5

3. (a) Consider the following C program

```
main ()
{
    int a, b;
    scanf ("%d%d", &a, &b);
    if (a==b)
        printf ("equal");
    else
        printf ("not equal");
}
```

Using Halstead's metric compute the estimated length and volume of the above code. 10

(b) Consider the following table indicates the various tasks involved in completing a software project, the activities and the estimated effort for each task in person-months —

<i>Notation</i>	<i>Activity</i>	<i>Efforts in person - months</i>
T_1	specification	3
T_2	DFD Design	2
T_3	ER Design	1
T_4	UML Design	4
T_5	user interface code	2
T_6	Database Code	2
T_7	integrate and test	8
T_8	write user manual	2

The precedence relation $T_i \leq \{T_j, T_k\}$ implies that the task T_i must finish before the start of T_j or T_k . Consider the following precedence

$$T_1 \leq \{T_2, T_3, T_4\} \leq \{T_5, T_6\} \leq T_7 \leq T_8.$$

Compute *ES*, *LS*, *EF*, *LF* and slack for each task. Find out the critical path for the above problem.

10

4. (a) Create a suitable SRS for the library of your college. 10
- (b) Briefly discuss the problems of SRS document. 5
- (c) How decision table overcomes the problems of SRS ? 5
5. (a) Briefly discuss about the cohesion and coupling. 5+5
- (b) Create a DFD for the following expression
- $$p = \frac{x^2 + y^2 + \sqrt{a^2 + b^2 + c^2}}{3}$$
- Create your data dictionary for the above expression. 7+3
6. (a) Compare GUI with text-based user interface. 5
- (b) Briefly discuss about the coding standards. 5
- (c) What are the differences between :
- (i) black box testing vs white box testing
 - (ii) Unit testing vs integration testing
 - (iii) α testing vs β testing. 4+3+3

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7. (a) Consider the following C Code

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

Create a CFG for the above program.
Compute McCabe's cyclomatic complexity
for the above program. 7+3

- (b) Briefly discuss about the different approaches
adopted to perform integration testing. 10