

Exam. Code : 107206

Subject Code : 2154

**Bachelor of Computer Application (BCA) 6th Semester
SOFTWARE ENGINEERING**

Paper-II

Time Allowed—3 Hours]

[Maximum Marks—75

Note :- There are **eight** questions in the question paper. The candidates are required to attempt any **five** of them. Each question carries **15** marks.

1. (a) The project team developing a new system is experienced in the domain. Although the new project is fairly large, it is not expected to vary much from applications that have been developed by this team in the past. Which process model would be appropriate for this type of development ?

- (i) Prototyping
- (ii) Waterfall
- (iii) V-model
- (iv) Spiral

Justify your answer also explaining why other models not chosen by you are unsuitable. 10

- (b) What is software ? Explain various characteristics of good software. 5

2. (a) What are the various size and time estimations measures in project management ? Explain in detail.

8

- (b) What is SRS ? What are the characteristics and components of a good SRS document ?

7

3. (a) Define cyclomatic complexity and all different methods to calculate cyclomatic complexity. For the following code segment, draw the control flow graph, compute the cyclomatic complexity value and identify the independent paths.

Max (a, b, c)

```
{  int i, j = 0;
```

```
    Sum = 0;
```

```
    if (a > b) then
```

```
        if (a > c) then
```

```
            print ("a as the largest")
```

```
        else
```

```
            print ("c is the largest")
```

```
    else
```

```
        if (b > c) then
```

```
            print ("b is the largest")
```

```
        else
```

```
            print ("c is the largest")
```

```
}
```

10

- (b) Differentiae between black box testing and white box testing. Explain in detail about any one testing tool.

5

4. (a) Explain the role of functional independence, coupling and cohesion with respect to modular design.

8

- (b) What is the difference between program and software ? Write out the reasons for the failure of Waterfall model.

7

5. (a) Who should do quality assurance ? Mention the goals of software quality group and also norms for formal technical review meeting.

8

- (b) List the various risks associated with software development and explain the measures to overcome.

7

6. (a) What is software engineering ? Discuss various Fourth generation techniques for software engineering.

8

- (b) Use COCOMO-II model to estimate the effort required to build software for a simple E-shopping application that provides 18 screens (simple), 15 reports (medium) and will require approximately 60 software components (difficult). Assume the developer's experience/capability is high and environment maturity/capability is very high. Use the application composition model with object points.

7

7. (a) What is the difference between top-down and bottom-up approach of coding ? How internal documentation is performed in coding process ?

8

- (b) What is user acceptance testing ? Explain different kinds of user acceptance testing. Why is it necessary ?

7

8. Write notes on the following :

(a) Information hiding

(b) PDL and Logic/Algorithm design

(c) Structured programming.

5+5+5