CS/B.TECH(ECE)/SEM-8/EC-803A/2012

2012

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

(Multiple Choice Type Question)

1. Choose the correct alternatives for the following: 10 x 1 = 10

i) To achieve a good design, modules should have

a) weak cohesion and low coupling

b) weak cohesion and high coupling

c) strong cohesion and low coupling

d) strong cohesion and high coupling

ii) If data from one module is used to direct the order o execution in another, then the coupling is known as

a) stamp coupling b) data coupling

c) control coupling d) Content coupling

iii) Tracking the correspondence between the design component and SRS is known as

a) Availability b) Traceability

c) Maintainability d) Reliability

iv) SA stands for

a) structured assessment

b) structured analysis

c) structured anomaly

d) none of these.

v) EXPLODING is very much similar to the keyword

a) Testing b) Tracing

c) Factoring d) Maintaining

vi) When the two bubbles are interconnected directly, it is referred as

a) Serial DFD b) Direct DFD

c) Synchronous DFD d) Balanced DFD

vii) DFD balancing means

a) balancing of weight of processes

b) must match the total number of bubbles

c) must match the data flow at the next level of DFD

d) none of these.

viii) Potential risks are best identified by

a) Waterfall model b) RAD Model

c) Prototyping model d) Spiral model

ix) COCOMO belong to

a) Empirical estimation technique

b) Heuristic estimation technique

c) Analytical technique

d) None of these.

x) The chain of activities that determines the duration of the project is

a) Duration path

b) Linearly independent path

c) Critical path

d) All of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 x 5 = 15

2. a) Explain Data-Dictionary.

b) What is integration testing? Explain with suitable example.

c) What is layered architecture? 2+2+1

3. a) Explain "Phase Containment Errors".

b) Explain structured analysis and structured design. 2+3

4. Discuss empirical estimation techniques.

5. Discuss different organizations and team structure.

6. For an MIS application of estimated size 60000 LOC, what should be the bidding price to have 20% profit margin, if recurring expenditures remain nominal compared to engineer's high salary of 1 lac per month?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 x 15 = 45

7. a) Draw the control flow graph for the following program.

Also calculate the cyclomatic complexity.

```
int fact ( int n ){
     int fact = 1;
     if ( x == 1)
```

```
            return (1);
        else
            for ( i = 1; i <= n; i++ )
                fact = fact * 1;
            printf ("factorial = %d", fact);
            return (fact );
    }
```

b) What do you mean by data dictionary? Explain with an example. Why is it used?

c) Distinguish between verification and validation.

8. a) Draw the context diagram and Level-1 DFD for Library Management System. Draw also Use-Case diagram for this system.

b) Explain WBS, Gantt chart and PERT chart.

c) Briefly explain team structures and organization process. (5+2)+5+3

9. a) What do you mean by requirement analysis?

b) Explain the phases of Spiral Model with advantages and disadvantages.

c) Discuss the different stages of 'Capability Maturity Model'.

d) What do you mean by Software Products? 3+5+5+2

10. a) What are the differences between fault, failure and error?

b) What are risk identification, estimation and mitigation?

c) What are the differences between code reviews and code walk through?

d) Compare and contrast between integration testing and system testing.

e) What are cohesion and coupling? 3+3+3+3+3

11. Write short notes on any *three* of the following: 3 x 5

a) RAD Model

b) White Box Testing

c) Software Quality Assurance

d) Project Staffing

e) Black Box Testing.

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