BRAINWARE UNIVERSITY

Term End Examination 2018 - 19

Programme – Master of Science in Computer Science

Course Name – Software Engineering & TQM

Course Code – MCS202

(Semester – 2)

Time allotted: 3 Hours **Full Marks : 70**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group –A

(Multiple Choice Type Question) 10 x 1 = 10

1. *Choose the correct alternative from the following*

(i) Which diagram is not included in Unified Modeling Language (UML)?

a. Activity diagram. b. Sequence diagram.

c. Use case diagram. d. Function hierarchical diagram.

(ii) Which is desirable?

a. High coupling, Low cohesion b. High coupling, High cohesion

c. Low coupling, Low cohesion d. Low coupling, High cohesion.

(iii) Linearly independent path is required to calculate the

a. Cyclomatic complexity. b. Software size.

c. Reliability. d. None of these.

(iv) 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

(v) Big Bank Integration Testing is useful for projects with

a. Smaller number of modules b. Large number of modules

c. Average number of modules d. None of these

(vi) The relative effort of development of a typical product to its maintenance effort is

a. 60:40 b. 50:50

c. 40:60 d. 70:30

(vii) The job responsibility of a project manager _____

a. Cost estimation b. Project staffing

c. Scheduling d. All of these

(viii) In the _____ project, the project deals with developing a well understood programme.

a. Semidetached b. Organic

c. Embedded d. None of these

(ix) Activities of a software project can be identified by

a. SRS document. b. SPMP document.

c. Task Planning sheet. d. Work breakdown structure.

(x) Which of the following is an essential feature of the RAD model?

a. Risk Management. b. Reuse of code.

c. Quality Management. d. Change Management.

Group – B

(Short Answer Type Questions) 3 x 5 = 15

Answer any *three* from the following

2. Write down the major features of SRS. (5)

3. What is system testing? How can CASE tool help for the purpose of test case generation? (2+3)

4. Explain SEI-CMM with suitable diagram. (5)

5. Explain how a software development effort is initiated and terminated in spiral model. (5)

6. What is software quality? What are the attributes of software quality? (2+3)

Group – C

(Long Answer Type Questions) 3 x 15 = 45

Answer any *three* from the following

7. Differentiate between error and defect. What do you mean by Total Quality Management? Explain features and requirements of ISO 9001 certification. What are six sigma qualities? What is the meaning of estimation? (2+3+6+4)

8. (a) What are the major limitations of Waterfall Model? Discuss the features of Spiral model with suitable diagram. Explain prototyping. (4+6+5)

9. (a) What are the differences between LOC and FP? (3)

   (b) Consider a project which the following functional units : No. of inputs = 10, No. of outputs = 5, No. of external queries = 6, No. of input files = 9, No. of external interface files = 16 and degree of influence = 49. Taking all these functional units as average, find the function point of the project. (6)

   (c) Draw the control flow graph for the following function named find-maximum. From the control flow graph, determine its cyclomatic complexity. (6)

```
int find-maximum (int i,int j,int k)
{
int max;
if (i>j)then
 if (i>k)then max=i;
 else max=k;
else if (j>k) max=j;
 else max=k;
return (max);
}
```

10. (a) What are the major strategies of S/W testing? (4)

    (b) Distinguish between WBT and BBT. (6)

    (c) Draw the CFG and find the cyclometic complexity of the following code: (5)

```
int compute_gcd(int a, int b) {
        while(a!=b) {
                if(a>b) then
                        a=a-b;
                else b=b-a;
        }
        Return a;
}
```

11 Write short notes on (any three) : (5*3=15)

   (a) Alpha testing vs Beta testing.

   (b) Mutation Testing.

   (c) Gantt Charts.

   (d) Cyclomatic Complexity.

   (e) COCOMO II.
