Total No. of printed pages = 8

Co-603/SE/6th Sem/2017/N

SOFTWARE ENGINEERING

Full Marks – 70

Time – Three hours

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

PART – A

Marks – 25

1. Choose the appropriate option : 1×10=10

   (i) Checking quality of software in both simulated and live environments is known as

   (a) Verification (b) Correctness

   (c) Validation (d) None of these

   (ii) DFD shows

   (a) the flow of data

   (b) processes

   (c) data storages

   (d) all of the above

[Turn over

(iii) Which of the following is not considered a tool at system design phase ?

(a) Data flow diagram

(b) Decision table

(c) Pie chart

(d) System flow chart

(iv) The advantages of creating a prototype are

(a) It allows developers to experiment with number of different design options

(b) It can serve as means of communication between developers and customers

(c) Both (a) and (b)

(d) None of the above

(v) Coupling is a measure of

(a) relative functional strength

(b) interdependence among modules

(c) dependence within the module

(d) none of these

(vi) Cost of error correction is least at the

(a) Implementation phase

(b) Design phase

(c) Coding phase

(d) Requirement analysis phase

(vii) Testing a program throughly

(a) guarantees all errors will be found

(b) only some errors will be found

(c) guarantees all defects will be found

(d) none of these

(viii) Cyclomatic complexity of the given program segment

```
read (x);
read (y);
If (x==y) then
        z = 2;
else
        z = 0;
end if;
```

(a) is 1 (b) is 2

(c) is 3 (d) none of the above

(ix) UML stands for

(a) Universal Modelling Language

(b) Uniform Modelling Language

(c) Unified Modelling Language

(d) None of these

(x) LOC and FP are measures of

(a) defects (b) errors

(c) size (d) none of these

2. State the word/words that matches the content of the given statement : 1×5=5

(i) Also known as structural testing.

(ii) Document prepared after the requirement analysis phase.

(iii) Process model that has risk assessment as a step.

(iv) Also known as Level 0 in context of DFD.

(v) Chart that represents the various modules and dependency among the modules.

3. State true or false : 1×5=5

(i) Stamp coupling is the lowest form of coupling.

(ii) Class diagrams represent the structural view in UML.

(iii) Boundary Value Analysis is a white box testing technique.

(iv) Cyclomatic complexity can be computed as E (edges) + N (nodes) – 2.

(v) Software project planning starts with size estimation.

4. Fill in the blanks : 1×5=5

(i) Feasibility study is a phase in _____ model.

(ii) SQA stands for _____ _____ _____.

(iii) PERT chart uses _____ time estimates.

(iv) COCOMO is a _____ estimation model.

(v) Resource allocation uses _____ chart.

PART – B

Mark – 45

Answer *all* the questions.

5. Write short answers : 2×10=20

(i) Define software crisis.

(ii) Differentiate between hardware and software reliability.

(iii) List the SQA activities.

(iv) What is POFOD in context of reliability ?

(v) State the difference in internal and external documentation.

(vi) What are drivers in relation to unit testing ?

(vii) Mention the possible team structures in software project management.

(viii) List the steps of prototyping model of software development.

(ix) List the precedence of activities in building a software project.

(x) State the activities in performing risk management exercise of software development.

6. Answer any *three* of the following questions : 5×3=15

(i) Explain the different modes of requirement collection.

(ii) Illustrate the different characteristics of good software design.

(iii) Explain the difference in basic, intermediate and complete COCOMO.

(iv) Differentiate between PERT and CPM identifying the salient points.

7. (i) State the purpose of constructing a 3+4+3=10

(a) DFD

(b) Structure chart

(c) ER-diagram

(ii) State the diagrams in UML that represent

(a) User's view

(b) Behavioural view

(iii) Draw the diagram of a student class with name 'student', showing five attributes and three operations.