Name : .....

Roll No. : .....

Invigilator's Signature : .....

2012

SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

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 Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

   (i) Which type of abstraction is used in software design ?

   a) Control b) Data

   c) Procedural d) All of these.

   (ii) To achieve good design, modules should have

   a) Weak cohesion and low coupling

   b) Weak cohesion and high coupling

   c) Strong cohesion and low coupling

   d) None of these.

   (iii) If the project size is same, then development time is maximum in case of

   a) Embedded

   b) Semi-dethatched

   c) Organic

   d) Impossible to determine.

(iv) In Integration testing approach, where all modules making up a system are integrated in a single step is known as

a) Top-down integration testing

b) Bottom-up integration testing

c) Big-band integration testing

d) Mixed integration testing.

(v) Which of the following life cycle model deals with risk associated with software products ?

a) Prototype model

b) Spiral model

c) Incremental model

d) Waterfall model.

(vi) Tracking the correspondence between design component and SRS is called

a) Availability b) Maintainability

c) Reliability d) Traceability.

(vii) System testing performed by a set of friendly customers is called

a) Alpha testing

b) Beta testing

c) Performance testing

d) Usability testing.

(viii) MTTF is a measure of

a) Reliability

b) Maintainability

c) Cost of effort

d) Testability.

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

a) Stamp Coupling
b) Data Coupling
c) Control Coupling
d) Content Coupling.

(x) Data processing programs are considered as

a) Utility Programs b) System Programs
c) Application Programs d) None of these.

GROUP – B

(Short Answer Type Questions)

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

2. What is Coupling ? What are the factors affecting coupling ? What is the relationship between coupling and cohesion ? 1 + 2 + 2
3. What are the different types of Testing ? How to design a Test Case ? 2 + 3
4. What is requirement tracing ? What is backward tracing *vs*. forward tracing ? 2 + 3
5. What is Stress Testing ? Why is Stress Testing applicable to only certain types of systems ? 2 + 3
6. What do you mean by balancing of DFD ? Explain with a suitable example. 2 + 3

GROUP – C

(Long Answer Type Questions)

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

7. a) What are the differences between black box testing and white box testing ?
   b) Discuss the roles of stubs and divers in integration testing.
   c) Define quality assurance and quality control. 5 + 5 + 5

8. a) What is COCOMO model ? What are different categories of software development projects according to COCOMO estimation model ?

   b) What is function prototyping ? Is the spiral model of software development a risk management model ? Discuss in brief.

   c) Why do we need to estimate software cost ? What are the methods of estimation ? (2 + 3) + (2 + 4) + 4

9. a) What is software project management ?

   b) What are the principles of project scheduling ?

   c) Explain WBS, Gantt chart and PERT chart.

   d) Briefly explain Organization and Team Structures. 2 + 4 + 6 + 3

10. a) Design 'White Box' test suite for the following :

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

   b) What is Function Point (FP) in project size estimation ?

   c) What is s/w reliability ? What is residual error ? How you estimate the residual error in a project ? 4 + 5 + 6

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

   a) Verification and Validation

   b) RAD model

   c) Feasibility analysis

   d) MaCall's quality triangle

   e) User Interface design.