Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/BCA/SEM-6/BCAE-602A/2013

2013

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 Questions)

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

   i) Which of the following is/are essential program construct(s) (*i.e.* it would not be possible to develop programs for any given problem without using the construct) ?

      a) Sequence b) Selection

      c) Iteration d) All of these.

   ii) Which of the following problems can be considered to be contributing to the present software crisis ?

      a) Large problem size

      b) Shortage of skilled manpower

      c) Lack of rapid progress of software engineering

      d) All of these.

iii) Among development phases of software life cycle, which phase typically consumes the maximum effort ?

a) Requirements analysis and specification

b) Design

c) Coding

d) Testing.

iv) In the classical waterfall model during which phase is the Software Requirement Specification (SRS) document produced ?

a) Design

b) Maintenance

c) Requirements analysis and specification

d) Coding.

v) An SRS document normally contains

a) functional requirements of the system

b) non-functional requirements of the system

c) constraints on the system

d) all of these.

vi) A module is said to have logical cohesion, if

a) it performs a set of tasks that relate to each other very loosely

b) all the functions of the module are executed within the same time span

c) all elements of the module perform similar operations, *e.g.* error handling, data input, data output etc.

d) none of these.

vii) The context diagram of a DFD is also known as

a) level 0 DFD b) level 1 DFD

c) level 2 DFD d) none of these.

viii) Data Flow Diagram (DFD) is also known as a
  a) structure chart b) bubble chart
  c) Gantt chart d) PERT chart.

ix) Compilers, linkers, etc. can be considered as
  a) application programs b) utility programs
  c) system programs d) none of these.

x) The primary objective(s) in using any CASE tool is/are
  a) to increase productivity of software development
  b) to decrease software development as well as software maintenance cost
  c) to help produce better quality software
  d) all of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following $3 \times 5 = 15$

2. What is incremental process model ?
3. List the major responsibilities of a software project manager.
4. Suppose you are developing a software product in the organic mode. You have estimated the size of the product to be about 1,00,000 lines of code. Compute the nominal effort and the development time.
5. What are the main activities carried out during requirements analysis and specification phase ? What is the final outcome of the requirements analysis and specification phase ?
6. What is the advantage of spiral model over waterfall model ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) What is prototype ? Under what circumstances is it beneficial to construct a prototype ? Explain the prototype model. 2 + 4 + 6

   b) What is phase containment of error ? 3

8. a) What is CASE tool ? 2

   b) What functions are performed by the services that are coupled with the CASE repository ? 6

   c) What is balancing of DFD ? 3

   d) Distinguish between logical DFD and physical DFD. 4

9. a) What do you mean by McCabe cyclomatic complexity ? Give example with control flow graph. 6

   b) Define cohesion and coupling with their classification. For a good design "high cohesion and low coupling is required". Explain it with reason. 9

10. a) What is risk analysis ? What is its significance in software engineering ? 5

    b) Identify at least 10 important components of a project plan. 5

    c) What is Work Breakdown Structure ? Discuss briefly with an example. 5

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

    a) Software Quality Assurance

    b) Alpha and Beta testing

    c) Black box and White Box testing

    d) Test automation

    e) RAD model.

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