2018

(CBCS)

(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

(Software Engineering)

Paper No. : BCA–404

Full Marks : 75

Time : 3 hours

(PART : A—OBJECTIVE)

(*Marks* : 25)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks* : 15)

1. Tick (✓) the correct answer in the brackets provided : 1×10=10

(a) The waterfall model of software development is

(i) a reasonable approach, when requirements are well-defined ( )

(ii) a good approach, when a working program is required quickly ( )

(iii) the best approach to use for projects with large development teams ( )

(iv) an old-fashioned model that is rarely used any more ( )

(b) Prototyping aims at

(i) end user understanding and approval ( )

(ii) program logic ( )

(iii) planning and dataflow organization ( )

(iv) product ( )

(c) Which one of the following is not identified by SQA plan?

(i) Evaluation to be performed ( )

(ii) End user's knowledge ( )

(iii) Procedure for error reporting and tracking ( )

(iv) Amount of feedback provided to the software project team ( )

(d) We can view the quality of a software product as having
   (i) better performance of hardware ( )
   (ii) error-free software ( )
   (iii) reusable software ( )
   (iv) quality software product ( )

(e) A module is said to have logical cohesion, if
   (i) it performs a set of tasks that relate to each other very loosely ( )
   (ii) all the functions of the module are executed within the same time span ( )
   (iii) all elements of the module perform similar operations, e.g., error handling, data input, data output, etc. ( )
   (iv) All of the above ( )

(f) If you were a lead developer of a software company and you are asked to submit a project/product within a stipulated time-frame with no cost barriers, which model would you select?
   (i) Waterfall ( )
   (ii) Spiral ( )
   (iii) RAD ( )
   (iv) Incremental ( )

(g) Which one of the following is not a requirement elicitation technique?
   (i) Interviews ( )
   (ii) Dataflow diagram ( )
   (iii) The use-case approach ( )
   (iv) FAST ( )

(h) Milestones are used to know the
   (i) cost of the project ( )
   (ii) user expectations ( )
   (iii) status of the project ( )
   (iv) None of the above ( )

(i) Effort is measured in terms of
   (i) rupees ( )
   (ii) person-months ( )
   (iii) persons ( )
   (iv) months ( )

(j) Which is not a software characteristic?
   (i) Software is always correct ( )
   (ii) Software does not wear out ( )
   (iii) Software is flexible ( )
   (iv) Software is not manufactured ( )

2. Tick (✓) whether the following statements are *True* (*T*) or *False* (*F*) : 1×5=5

(a) Units and stubs are not needed for unit testing because the modules are tested independently of one another.
(*T* / *F*)

(b) System implementation should begin only after system acceptance.
(*T* / *F*)

(c) Project-risk factor is considered in prototyping model only.
(*T* / *F*)

(d) 'Lines of Code' (LOC) is used as estimation variable to size each element of the software.
(*T* / *F*)

(e) The goal of quality assurance is to provide management with the data needed to determine which software engineers are producing the most defects.
(*T* / *F*)

SECTION—B

(*Marks* : 10)

Answer the following questions : 2×5=10

1. What are software myths in software engineering?

2. What is meant by requirement analysis?

3. Define modularity. Why is it important?

4. Why do we need to estimate the size of a software?

5. What is meant by software reliability?

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

The figures in the margin indicate full marks for the questions

1. *(a)* Explain the waterfall model of software development with diagram. 5

(b) Define software engineering. What are the characteristics of software in software engineering? 5

OR

(c) Explain increment process model of software development with diagram. 5

(d) Explain the spiral model in detail. 5

2. *(a)* Explain different types of requirement elicitation technique in detail. 10

OR

(b) What is requirement engineering? Explain its types. 5

(c) What is ER diagram? How is it useful in software requirement analysis? 5

3. (a) Explain the function-oriented design in detail. 5

(b) Differentiate between cohesion and coupling. 5

OR

(c) Explain the object-oriented design in software design. 5

(d) Explain in detail the hybrid design in software development. 5

4. (a) Explain the function count estimation in detail. 5

(b) What are the major risks that can be encountered in software development? 5

OR

(c) What is token count? How do we measure the size of a software using token count? 5

(d) Define software metrics. Explain the method of information flow metrics. 5

5. (a) Write a short note on system testing. 5

(b) What are the important factors that determine the quality of a software? 5

OR

(c) Write a short note on white box testing. 5

(d) Define software maintenance. Explain the software re-engineering method in detail. 5

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