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(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper No. : BCA–404

(Software Engineering)

Full Marks : 75

Time : 3 hours

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

The figures in the margin indicate full marks
for the questions

1. *(a)* Define the term 'software engineering'. State characteristics of a well-engineered software. Explain the classical life-cycle paradigm for software engineering.   5

   (b) What do you understand by build-and-fix model of a software development? Identify at least four major problems that would be faced if a larged product development work is undertaken using the build-and-fix model of software development.   5

Or

(c) Increasing interest is being taken in the use of rapid application development. Why is this and are there any dangers associated with the RAD approach?   5

(d) Define software process. What are the fundamental activities of a software process?   5

2. *(a)* Define the term 'feasibility study'. Explain requirement of three feasibility studies during software development.   5

   (b) What do you mean by the term Data Dictionary in the context of software analysis and specification? How is the data dictionary useful during software development and maintenance?   5

Or

(c) What is the importance of properly documentation during the software development? Explain three commonly used requirement elicitation techniques for software analysis.   4

(d) What is the importance of SRS? List the characteristics of a good quality SRS. What kind of information should an SRS include?   6

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(3)

3. (a) How are cohesion and coupling related? Give an example of where cohesion increases and coupling decreases. 5

(b) Differentiate between top-down and bottom-up approaches in respect to software design. 5

Or

(c) Define three types of module cohesion and coupling with suitable examples. What problems arise if two modules have high coupling? 6

(d) Differentiate between technical design and conceptual design. 4

4. (a) What are meant by measures and metrics? Explain the role of metrics in software engineering. 5

(b) What are activities during the entail stage of software project planning? What are the difficulties faced in measuring the software costs? 5

Or

(c) What is risk analysis? Explain three activities of risk assessment. 5

(d) Discuss various types of COCOMO model and its phasewise effort distribution. 5

(4)

5. (a) Discuss the important objectives of testing software system. Do you agree with the statement, "System testing can be considered as a pure black-box test"? Justify your answer. 4

(b) Explain the steps of software maintenance with the help of a diagram. 6

Or

(c) Differentiate between the following (any *two*) : 5×2=10

(i) Verification and Validation

(ii) Reverse engineering and Re-engineering

(iii) Functional testing and Integration testing

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Subject Code : IV/BCA/404

Booklet No. A

To be filled in by the Candidate

Date Stamp ....

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DEGREE 4th Semester

(Arts / Science / Commerce /

........................) Exam., **2017**

Subject ....

Paper ....

INSTRUCTIONS TO CANDIDATES

1. **The Booklet No. of this script should be quoted in the answer script meant for descriptive type questions and vice versa.**

2. **This paper should be ANSWERED FIRST and submitted within** 1 (one) Hour **of the commencement of the Examination.**

3. **While answering the questions of this booklet, any cutting, erasing, over-writing or furnishing more than one answer is prohibited. Any rough work, if required, should be done only on the main Answer Book. Instructions given in each question should be followed for answering that question only.**

To be filled in by the Candidate

DEGREE 4th Semester

(Arts / Science / Commerce /

........................) Exam., **2017**

Roll No. ....

Regn. No. ....

Subject ....

Paper ....

Descriptive Type

Booklet No. B ....

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(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper No. : BCA–404

(Software Engineering)

(PART : A—OBJECTIVE)

(*Marks* : 25)

The figures in the margin indicate full marks for the questions

SECTION—I

(*Marks* : 15)

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

(a) System specification is mainly concerned with

   (i)   how the functions are performed   (   )

   (ii) what functions are to be performed (   )

   (iii) Both *(i)* and *(ii)*   (   )

   (iv) None of the above   (   )

(b) Which one of the following is not internal document?

   (i)   Code indentation   (   )

   (ii) Use of constant identifier   (   )

   (iii) Code structuring   (   )

   (iv) SRS   (   )

(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 quality of a software product as having

    (i) product operation   (   )

    (ii) product revision   (   )

    (iii) product transition   (   )

    (iv) All of the above   (   )

(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) Usability can be measured in terms of

    (i) intellectual skill to learn the system   (   )

    (ii) time required to become moderately efficient in system usage   (   )

    (iii) net increase in productivity   (   )

    (iv) All of the above   (   )

(g) Modular design of a system means

    (i) delivering a complex system to the customer one piece at a time   (   )

    (ii) divide the whole system into a number of units, each of which is quite cohesive within itself and is not too dependent on others, and to design and develop the units separately   (   )

    (iii) using models at its phase of system life cycle   (   )

    (iv) using subroutine libraries   (   )

(h) In object-oriented design

    (i) operations and methods are identical   ( )

    (ii) methods specify algorithms whereas operations only state what is to be done   ( )

    (iii) methods do no change values of attributes   ( )

    (iv) methods and constructors are same   ( )

(i) Find the odd one out :

    (i) Interview   ( )

    (ii) Examination   ( )

    (iii) Record review   ( )

    (iv) Observation   ( )

(j) Which of the following does not affect the software quality and organizational performance?

    (i) Market   ( )

    (ii) Product   ( )

    (iii) Technology   ( )

    (iv) People   ( )

2. State whether the following statements are *True* or *False* by putting a Tick (✓) mark : 1×5=5

(a) In bottom-up testing, each subsystem is tested separately and then the full system is tested.

True ( ) *False* ( )

(b) The most fundamental calculation in the COCOMO model is the use of the effort equation to estimate the number of Person-Months required to develop a project.

True ( ) *False* ( )

(c) Lines of Code (LOC) is used as estimation variable to size each element of the software. It requires considerable level of detail.

True ( ) *False* ( )

(d) Quality assurance is the activity that leads to 'fitness of purpose'.

True ( ) *False* ( )

(e) Project risk factor is considered in prototyping model only.

True ( ) *False* ( )

SECTION—II

(*Marks* : 10)

3. Answer the following questions :   2×5=10

   (a) What problems may be encountered when top-down integration is chosen?

(b) How might the completion times and costs be estimated for a new software engineering contract?

(c) Briefly explain how algorithmic cost can be used for estimating software cost.

(d) Which of the software engineering paradigms would be most effective for a developing customized software of a small organization and why? State your own opinion.

(10)

(e) What are different measures for measuring software quality?

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