Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 80294

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Fourth Semester

Computer Science and Engineering

CS 6403 — SOFTWARE ENGINEERING

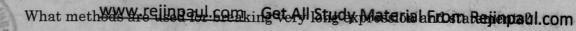(Common to Information Technology)

(Regulation 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. If you have to develop a word processing software product, what process model will you choose? Justify your answer.

2. Depict the relationship between Work product, task, activity and System.

3. Classify the following as functional / non-functional requirements for a banking system

   (a) Verifying bank balance

   (b) Withdrawing money from bank

   (c) Completion of transactions in less than one second

   (d) Extending the system by providing more tellers for customers.

4. What is a data dictionary?

5. What architectural styles are preferred for the following systems? Why?

   (a) networking

   (b) web based systems

   (c) banking system.

6. What UI design patterns are used for the following?

   (a) Page layout

   (b) Tables

   (c) Navigation through menus and web pages

   (d) Shopping cart.

7. What methods are used for breaking very long expression and statement?

8. What is the difference between verification and validation? Which types of testing address verification? Which types of testing address validation?

9. What is risk management?

10. How is productivity and cost related to function points?

PART B — (5 × 16 = 80 marks)

11. (a) Which process model is best suited for risk management? Discuss in detail with an example. Give the advantages and disadvantages of the model.

Or

(b) (i) List the principles of agile software development. (8)

(ii) Consider 7 functions with their estimated lines of code given below. (8)

Function	LOC
Func1	2340
Func2	5380
Func3	6800
Func4	3350
Func5	4950
Func6	2140
Func7	8400

Average productivity based on historical data is 620 LOC/pm and Labour rate is Rs. 8,000 per month. Find the total estimated project cost and effort.

12. (a) What is requirements elicitation? Briefly describe the various activities performed in requirements elicitation phase with an example of a watch system that facilitates to set time and alarm.

Or

(b) What is the purpose of data flow diagrams? What are the notations used for the same. Explain by constructing a Context flow diagram level-0 DFD and level-1 DFD for a library management system.

13. (a) What is structured design? Illustrate the structured design process from DFD to structured chart with a case study.

Or

(b) (i) Describe the golden rules for interface design. (8)

(ii) Explain component level design with suitable examples. (8)

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14. (a) (i) Consider the pseudocode for simple subtraction given below : (10)

    (1)   Program 'Simple Subtraction'

    (2)   Input (x, y)

    (3)   Output (x)

    (4)   Output (y)

    (5)   If x > y then DO

    (6)   x − y = z

    (7)   Else y − x = z

    (8)   EndIf

    (9)   Output (z)

    (10) Output "End Program"

    Perform basis path testing and generate test cases.

    (ii)   What is refactoring? When is it needed? Explain with an example.

         (6)

Or

(b) What is black box testing? Explain the different types of black box testing strategies. Explain by considering suitable examples. (16)

15. (a) (i) Suppose you have a budgeted cost of a project as Rs. 9,00,000. The project is to be completed in 9 months. After a month, you have completed 10 percent of the project at a total expense of Rs. 1,00,000. The planned completion should have been 15 percent. You need to determine whether the project is on-time and on-budget? Use Earned Value analysis approach and interpret. (8)

    (ii)   Consider the following Function point components and their complexity. If the total degree of influence is 52, find the estimated function points. (8)

Function type	Estimated count	Complexity
ELF	2	7
ILF	4	10
EQ	22	4
EO	16	5
EI	24	4

Or

(b) Describe in detail COCOMO model for software cost estimation. Use it to estimate the effort required to build software for a simple ATM that produces 12 screens, 10 reports and has 80 software components. Assume average complexity and average developer maturity. Use application composition model with object points.