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Question Paper Code : 52864

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Fourth Semester

Computer Science and Engineering

CS 6403 — SOFTWARE ENGINEERING

(Common to Information Technology)

(Regulation 2013)

(Also common to PTCS 6403 — Software Engineering for B.E. (Part – Time) for Fourth Semester – Computer Science and Engineering – Regulations 2014)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate Software engineering methods, tools and procedures.
2. What is EVA?
3. Define Data Dictionary.
4. Classify the following as functional / non-functional requirements for a Timer.
5. List the principles of a software design.
6. Which UI design patterns are used for the following:
   (a) Page layout
   (b) Tables
   (c) Navigation through menus and web pages
   (d) Shopping cart.
7. Distinguish between verification and validation.
8. Distinguish between Alpha and Beta testing.
9. What are the advantages and disadvantages of size measure?
10. For a project XYZ, defects reported by the customer are 5 and internal defects reported are 150. Find the defect leakage.

PART B — (5 × 13 = 65 marks)

11. (a) Which process model would you choose to manufacture a car? Explain the same.

Or

(b) What is function point analysis? Explain the process of project estimation using function points. Explain by considering the following. An ILF consisting of employee information can be updated with EIs that create employee information, delete an employee, or update employee information. An EQ permits display of current employee information. A telephone listing produced monthly, with a calculated total of employees by site, is counted as an EO. The telephone listing includes data retrieved from a personnel file maintained by another application: an EIF. Consider complexity of EO as medium and others as low.

12. (a) What is requirements elicitation? Briefly describe the various activities performed in requirements elicitation phase with an example.

Or

(b) Write the purpose of an SRS? List its components. Discuss in detail the components of SRS for functional requirements.

13. (a) (i) What is coupling? Explain the different types of coupling with examples. (10)

(ii) Consider the following case:

Process control component maintains current data about state of operation. Gets data from multiple sources. Supplies data to multiple sinks. Each source process writes directly to global data store. Each sink process reads directly from global data store.

What type of coupling exists in the system? How can it be over come? (3)

Or

(b) What is software architecture? Describe in detail any three architectural styles giving suitable examples.

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

(i) Program 'Simple Subtraction'
(ii) Input (x, y)
(iii) Output (x)
(iv) Output (y)
(v) If $x > y$ then DO.
(vi) $x - y = z$
(vii) Else $y - x = z$
(viii) Endlf
(ix) Output (z)
(x) Output "End Program".

Compute the cyclomatic complexity for the same. Write down the test cases. Perform basis path testing and generate test cases.

Or

(b) What is black box testing? Explain in detail Boundary value analysis with an example.

15. (a) The time estimates (in hours) for the activities of a PERT network are given below:

Activity	t_0	t_m	t_p
1-2	1	1	7
1-3	1	4	7
1-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-6	2	5	8
5-6	3	6	15

Where t_0 is the optimistic time t_p is the pessimistic time and t_m is most likely time

(i) Draw the project network

(ii) Identify all paths through it and write critical path

(iii) Determine the expected project length.

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 avenge developer maturity. Use application composition model with object points.

PART C — (1 × 15 = 15 marks)

16. (a) What is the purpose of DFD? Explain the components of the DFD. Construct the context diagram, level -0 DFD and level -1 DFD for a salary management system and explain.

Or

(b) Write about make/Buy decision making. Explain it with a scenario.

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