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Question Paper Code : 40394

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Fourth/Fifth Semester

Computer Science and Engineering

CS 8494 — SOFTWARE ENGINEERING

(Common to Computer and Communication Engineering/B.Tech. Information
Technology)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List out the five activities of a generic process framework for software engineering.
2. Draw the flow diagram of Iterative process flow and parallel flow.
3. Requirements engineering builds a bridge to design and construction, but where does the bridge originate?
4. Represent a basic use case for system activation for the homeowner who uses the control panel.
5. List out the potential content components for the video surveillance.
6. “If a design model of the interface has been created, a number of evaluation criteria can be applied during early design reviews”: list out few evaluation criteria.
7. “The definition of Verification and Validation (V&V) encompasses many software quality assurance activities” — comment on it.
8. State the three different classes of test cases for the regression test suite to be executed.

9. Illustrate the hierarchy of estimation models of COCOMO II which addresses three different areas.
10. Construct the table for risk component over four impact categories such as negligible, marginal, critical, or catastrophic.

PART B — (5 × 13 = 65 marks)

11. (a) List out the various prescriptive process model available in software development, with appropriate diagram, discuss any two prescriptive process model in detail.

Or

- (b) Explain the 12 practices of extreme programming. Explain how agility is achieved in extreme programming.
12. (a) Discuss the functional and non-functional requirements along with the stake-holders influence in order to develop a mobile banking application.

Or

- (b) “Requirements analysis allows you (regardless of whether you’re called a software engineer, an analyst, or a modeler) to elaborate on basic requirements established during the inception, elicitation, and negotiation tasks that are part of requirements engineering” — Justify the statement with proper explanations.
13. (a) Hundreds of User Interface (UI) patterns have been proposed in recent years. Most of them falls within one of the ten categories of patterns. Discuss all those patterns in detail.

Or

- (b) An e-commerce based software company is designing an internet banking system. To improve the performance of the system, the requests from the users are scattered and processed at many servers. Identify an architectural model that best suits in designing such a system.
14. (a) Discuss briefly how black box testing is carried out for a word processing application.

Or

- (b) “Like most engineering activities, business process reengineering is iterative” – justify the statement with brief explanation and appropriate model diagram.

15. (a) Discuss how a risk table provides you with a simple technique for risk projection. Graphically represent Risk and management concern. Elaborate the representation in detail with respect to RMMM.

Or

- (b) With appropriate time-line chart describe the scheduling of a software project. Also construct the project table for the plan and task.

PART C — (1 × 15 = 15 marks)

16. (a) Government of India is planning to develop a system: Given a biometric fingerprint as input, it should retrieve photograph, unique Id of that person and PAN information as well. Reusable Components are already available to design such a system. Information about the components is given that; “Photo Identifier”-takes the biometric fingerprint as input and retrieves the photograph of that person. “Information mapped” — takes input as photograph and displays the details like name, address, DOB, occupation, unique ID, PAN info. The PAN information is provided by another component called “PAN” which takes name, father’s name, DOB as input and returns PAN info. Design the component based architecture for above given component description. Identify the type of composition used to combine the components and justify.

Or

- (b) You’ve purchased a house in another state. You’ve never actually seen the property, but you acquired it at an amazingly low price, with the warning that it might have to be completely rebuilt. How would you proceed? How can you use a software reengineering process model to implement those principles?
