Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 70441

B.E./ B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

Fourth/Fifth Semester

Computer Science and Engineering

CS 8494 – SOFTWARE ENGINEERING

(Common to: B.E. Computer and Communication Engineering/ B.Tech. Computer Science and Business Systems/ B.Tech. Information Technology)

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Compare Waterfall and Agile software development methodologies.

2.   Why is Continuous Integration and Continuous Delivery important in Extreme Programming?

3.   What are the important tasks involved in feasibility study of software engineering?

4.   Compare functional and non-functional requirements. Give an example for each.

5.   What are the major factors to be considered in User Interface design?

6.   What is an architectural style/ pattern? State two of its principal advantages.

7.   Justify two problem statements: when forward engineering and reverse engineering will be useful.

8.   What is regression testing? How is it different from stress testing?

9.   What is Risk mitigation? What role does it play in Risk Management?

10. What are the pros and cons of LOC and FP based estimation?

PART B — (5 × 13 = 65 marks)

11. (a) Explain the various types of software process models with pros and cons. Give examples of software projects, where each software process model is the best with proper justification.

Or

(b) Explain the different types of Agile methodology. What are the advantages and disadvantages of Agile process?

12. (a) Explain the various types and characteristics of Requirements. How can we express the requirements?

Or

(b) Explain the different steps involved in software requirements engineering process. Justify the importance of each step.

13. (a) What is meant by Coupling and Cohesion? Explain the various types of Coupling and Cohesion with examples.

Or

(b) Construct the appropriate UML diagrams for a Library Management system in an educational institution.

14. (a) Suppose you are building a tax preparation system that has three components. The first component creates forms on the screen, allowing the user to type in name, address, tax indentation number and financial information. The second component uses tax tables and input information to calculate the amount of tax owned for the current year. The third component uses the address information to print forms for state and city taxes, including the amount owed. Describe the strategy for testing the system and outline your test cases in a test plan.

Or

(b) What are the main software maintenance activities? Explain the four types of software maintenance.

15. (a) Explain the COCOMO II model for estimation.

Or

(b) Explain the primary methods for risk management. Explain RMMM plan.

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PART C — (1 × 15 = 15 marks)

16. (a) Explain the different types architectural styles. Give proper examples for each of them. Draw the structure of each of them. Illustrate the pros and cons of each of them.

Or

(b) What is Component design? Explain the importance of component based design processes in this modern era. Draw the UML component diagram for the Online shopping web portal.

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