

II B.Tech II Semester Regular Examinations, July 2022

SOFTWARE ENGINEERING

(Computer Science and Engineering, Artificial Intelligence and Data Science)

Time: 3 Hours**Max. Marks: 70****Note:** Answer one question from each unit.

All questions carry equal marks.

5 × 14 = 70M**UNIT-I**

1. a) What are the symptoms of the present software crisis? What are the possible solutions to the present software crisis? (4M)
- b) Compare prototype model with iterative waterfall model. (10M)

(OR)

2. a) What are the objectives of the feasibility study phase of software development? Explain the important activities that are carried out during the feasibility study phase of a software development project. Who carries out these activities? (7M)
- b) Mention at least two reasons as to why classical waterfall model can be considered impractical and cannot be used in real projects. (7M)

UNIT-II

3. a) Compute the FP value for the grade calculation of students. Assume that it is an average complexity size project. The information domain values are as follows: (7M)

Number of user inputs = 13

Number of user outputs = 4

Number of user inquiries = 2

Number of files = 5

Number of external interfaces = 2

The total value of complexity adjustment attribute is 13.

- b) What do you understand by work breakdown structure in project management? Explain with an example. (7M)

(OR)

4. a) List out the major shortcomings of function point metric in order to use it as a software project size metric. (6M)
- b) Assume that the size of an organic type software product has been 30,000 lines of code. Assume that the average salary of software engineers is Rs,18,000per month .Determine the effort required to develop the software product and the nominal development time. (The constants for the organic type software are $a_1=2.4$, $a_2=1.05$, $b_1=2.5$, $b_2=0.38$). (8M)

UNIT-III

5. a) Categorize the components of an SRS with suitable examples. (7M)
b) Explain High level Function using ATM example. (7M)

(OR)

6. a) How are the abstraction and decomposition principles used in the development of a good software requirements specification? (6M)
b) Why is the SRS document also known as the black-box specification of a system? Who are the different category of users of the SRS document? In what ways is the SRS document useful to them? (8M)

UNIT-IV

7. a) Identify different classes that constitute a banking system and draw the class diagram for banking system. Make sure to show attributes, multiplicities and operations. (7M)
b) Distinguish between function-oriented design and object-oriented design. (7M)

(OR)

8. a) What does aggregation relationship between classes represent? Give examples of aggregation relationship between classes. (7M)
b) Develop a sequence diagram for “Withdraw money” use case of ATM system. (7M)

UNIT-V

9. a) A program reads three numbers, A, B, and C, with a range [1, 50] and prints the largest number. Design test cases for this program using equivalence class partitioning technique. (6M)
b) Distinguish error and failure. Which of the two is detected by testing? Justify your answer. (8M)

(OR)

10. a) What is Black-box testing? Explain with suitable example how boundary value Analysis is performed. (10M)
b) A program determines the next date in the calendar. Its input is entered in the form of ddmmyy with the following range: (4M)

$$1 \leq mm \leq 12$$

$$1 \leq dd \leq 31$$

$$1900 \leq yyyy \leq 2025$$

Its output would be the next date or an error message ‘invalid date’. Design test cases using equivalence class partitioning method.
