

A

(20322)

Roll No.

B. Sc.(Hons.) Com. Sci.-V Sem.

NS-3375(CV-III)

B. Sc. (Hons.) Examination, Dec. 2021

COMPUTER SCIENCE

Software Engineering

(BHCS-502)

Time : 1½ Hours]

[Maximum Marks : 75



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Note : Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Type Questions)

Answer any *two* questions out of the following five questions. Each question carries 7½ marks. Very short answer is required not exceeding 75 words.

$$7\frac{1}{2} \times 2 = 15$$

1. Explain software engineering process models and its type in details.
2. Explain the key points considered for software validation and verification.

(2)

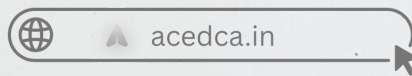
3. Briefly explain the activities performed during software management process.
4. Describe the methods for Risk projection.
5. Describe the merits and demerits of incremental model.

Section-B

(Short Answer Type Questions)

Answer any *one* question out of the following three questions. Each question carries 15 marks. Short answer is required not exceeding 200 words.

15×1=15



6. Describe the main activities in the software design process and the outputs of these activities. Using a diagram, show possible relationship between the output of these activities.
7. Explain how, both the waterfall model and the prototyping model of the software development process can be accommodated in the spiral process model.
8. Draw the complete DFD, at least up to 2-levels for a library management system.

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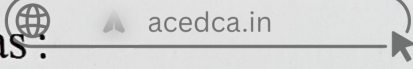
(3)

Section-C

(Detailed Answer Type Questions)

Answer any *two* questions out of the following five questions. Each question carries $22\frac{1}{2}$ marks.

Answer is required in detail. $22\frac{1}{2} \times 2 = 45$

9. Define software architecture. Explain why it may be necessary to design the system architecture before the specification. Compare function oriented and object oriented design approaches.
10. Give the requirements for an ATM (Automatic Teller Machine) as: 
- "The ATM serves one customer at a time. A customer needs an ATM card with pin number to withdraw money. Cash can be withdrawn in multiple of 100 rupees and from any of the connected branch. The branch permission is required for dispense of cash. A customer can also deposit money through an ATM. The money transfer is also permitted through ATM but with an upper cap of 50,000 rupees."
- Design the following :
- (a) Use case diagram
 - (b) Activity diagram dealing with each activity
 - (c) List the test cases for various functionality defined in the use case diagram.

(4)

11. In COCOMO model, when the size of a software is increased two times, the time to develop the product usually increased to nearly two times. Explain.
12. Describe the outline equivalence class partitioning boundary value analysis and regression testing with a suitable example.
13. State the goal of product matrices used in software engineering. For the following information given in Table-1, compute function point, productivity, documentation and cost per function :

 **Table-1** 

Number of User Inputs	28
Number of User Outputs	42
Number of Inquiries	8
Number of Files	4
Number of External Interfaces	2
Efforts	34.9 P-M
Technical documents	256 pages
User Documents	122 pages
Cost	Rs. 8000/months