Semester: January 2023 to May - 2023

Maximum Marks: 100	Examination: ESE Examination — KT		Duration: 3 Hrs.
Programme code: 1 Programme: B. Tech. Computer Engineering		Class: T.Y.	Semèster: V (SVU 2020)
Name of the Constituent College: K. J. Somaiya College of Engineering		Name of the department: Computer Engineering	
Course Code: 116U01C50|	Name of the Course: Software Engineering		

Instructions:

1) Explain with neat and suitable diagram whenever necessary diagrams
2) All questions are compulsory
3) Assume suitable data wherever necessary

Que. No.	Question	Max. Marks
Q1	Solve **ANY FOUR**	20
i)	What is process metrics?	5
ii)	What is Static and Dynamic modelling of a system? Mention merits and limitations of one over other.	5
iii)	What is cohesion and coupling in connection with object oriented design?	5
iv)	What is validation and verification with respect to software development?	5
v)	What are the risk handling approaches?	5
vi)	What are goals of software testing ?	5
Q2 A		10
i)	Mention assumptions and constrains of the system clearly. For a software for online banking, write functional and non-functional requirements clearly.	5
ii)	What is Component Based Software Engineering? Mention the merits of the same. OR	5
Q2 A	After clearly mentioning assumptions, compute the function point, productivity, documentation, cost per function for the following data: 1. Number of user inputs = 24 2. Number of user outputs = 46 3. Number of inquiries = 8 4. Number of files = 4 5. Number of external interfaces = 2 6. Effort = 36.9 person month 7. Technical documents = 265 pages 8. User documents = 122 pages 9. Cost = 80000 INR / month Various processing complexity factors are: 4, 1, 0, 3, 3, 5, 4, 4, 3, 3, 2, 2, 4, 5.	10

Q 2 B	Solve ANY ONE	10
i)	You have developed a software for calculation of discount to be offered to a customer based on the following criteria: **Write assumptions, if any, clearly, before writing test cases** a) 5 % discount on the first purchase if its is more than 2000 INR b) 10 % discount for registered customers (other than first time) of the purchase value. c) Offer a gift voucher worth 500 INR if the purchase is more than 5000 INR. Develop test cases to ensure each of the above is tested. (use any approach)	10
ii)	You are appointed as a software consultant for implementing a Library Management System. One of the module is returning a book. Your system should debit overdue charges, if applicable, before updating the return information. A separate log is created of all books returned on a specific date. This will help to provide a facility to generate reports of books returned day-wise. Draw Database Diagram and sequence diagram **Mention ALL YOUR ASSUMPITIONS and CONSTRAINTS of the system developed.**	10
Q3	Solve ANY TWO	20
i)	What are different categories of risks? Explain various sources of risks in a software development.	10
ii)	What is pattern based software design? How layering approach improves software development process?	10
iii)	Compare Object Oriented Testing approach with typical approach used for software testing	10
Q4	Solve ANY TWO	20
i)	What are User Interface Design principles? What steps you will follow while designing user interface for a returning a book in a software developed for a Library Management Software. **Mention your assumptions clearly, if any.**	10
ii)	What are approaches of implementing integration testing? How stubs and drivers are used in software testing?	10
iii)	Compare and contrast the object oriented methodology of Booch, Rumbaugh, and Jacobson	10
Q5	Solve ANY FOUR	20
i)	What are Product metrics? Give example of the same.	5
ii)	What do you understand by requirement qualities?	5
iii)	How are the changes in Software Development managed?	5
iv)	What are the advantages of a modular software design?	5
v)	With example, differentiate between packages and interfaces.	5
vi)	What is reengineering? How will that can be implemented in producing software?	5