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ANNA UNIVERSITY:: CHENNAI - 25

B.E(FT) END SEMESTER EXAMINATIONS – MAY/JUNE 2024

Computer Science and Engineering

Sixth Semester

CS6304 & Software Engineering

(Regulation 2018 - RUSA)

Time:3 Hours

Max.Marks: 100

CO1	Point out the role and impact of software engineering in contemporary business, and global, economic, environmental and societal context
CO2	Analyze and resolve information technology problems through the application of systematic approaches and diagnostic tools
CO3	Analyze, design and manage the development of a computing-based system, component or process to meet the desired needs within realistic constraints in one or more application domains
CO4	Use knowledge, techniques, skills and modern tools necessary for software engineering practice
CO5	Engineer tools to analyze, evaluate, select and synthesize information sources for the purpose of developing a software system

Blooms Level: L1- Remember L2- Understanding L3- Apply L4- Analyze L5- Evaluate L6- Create

Answer All Questions

PART - A (10 x 2 = 20 Marks)

		CO	BL
1.	State the purpose of identifying various phases in software development.	**CO1**	**L2**
2.	List any two deficiencies in waterfall model	**CO2**	**L1**
3.	Classify the following as Functional / Non Functional requirements for a banking system. a) Verifying bank balance b) Withdrawing money from the bank c) Completion of transactions in less than one second d) Extending the system by providing more tellers for the customer.	**CO3**	**L4**
4.	What is glass box testing approach? Explain any two types of this testing methodology	CO5	L1
5.	You are designing an application software for a bank, to automate the process of money transfers, and other banking tasks. State any 4 metrics you would use to evaluate the non-functional requirements.	CO5	L3
6.	How do we assess the quality of the software design?	CO5	L2
7.	Explain any two debugging strategies and how they help resolve bugs in software.	CO4	L1

8.	Differentiate between verification and validation	CO5	L1
9.	Analyze on how software risks are assessed.	CO5	L4
10.	State and explain regression testing. Why is it necessary to conduct it?	CO4	L1

PART – B (8 x 8 = 64 marks)

(Answer any 8 questions)

11.	Explain about the umbrella activities that support the software development process and discuss their necessity in maintaining the quality of both software process and product that is being developed for the railway reservation system.	**CO1**	**L2**
12.	Describe the SEI Process maturity model.	**CO3**	**L1**
13.	You are hired as a software engineer to develop an Online Shopping Platform like Flipkart. The platform will allow users to browse through various products, add them to their cart, and purchase them online. The platform will also have functionalities for user registration, order management, and product inventory management. As a software engineer, you are responsible for creating a Software Requirement Specification (SRS) document for the Online Shopping Platform. The SRS document should clearly outline the functional and non-functional requirements of the system.	CO4	**L3**
14.	Discuss some of the problems that occur when requirements must be elicited from three or four customers.	CO3	L4

15.	Consider the given pseudocode for simple subtraction given below:
	Input: x, y
	Output: y
	If x>y then Do
	x-y=z
	else y- x=z
	endif
	output(z)
	Perform the basic path testing and generate test cases.
		CO4	**L3**

16. Elaborate on the equivalence partitioning and cause-effect graphing black box testing techniques. Which one is more time efficient and why? CO3 **L2**

17. State the purpose of a data flow diagram. Draw a level-0 and level-1 DFD for a food ordering system in a restaurant. CO1 **L3**

18. Consider the following program segment. CO3 L3

```
/*num is the number of function searches in a presorted integer array arr*/
int bin_search(int num)
{
int min, max;min=0; max=100;
while(min!=max){
if(arr[(min+ max)/2]>num)
max=(min+max)/2;
else if (arr[min+max)/2]
min=( min+max)/2;
else return((min+max)/2;
}
return(-1);
}
```

i) Draw the control flow graph for the above program segment

ii) Determine the cyclomatic complexity of the program and show the intermediate steps.

19. What are the objectives of performance testing? Explain the various types of performance testing by taking movie ticket booking as a case study. CO2 L2

20. Elaborate in detail about how to identify the risks involved in software projects. CO4 L1

21. Write in detail about risk mitigation, monitoring, and management CO4 L2

22. Write short notes on the following. CO1 L1

i) Architectural design

ii) User Interface design

iii) Component-level design

iv) Data/ Class design

PART–C(2x8=16marks)

Answer all the Questions

23.	You are leading a software development team tasked with developing a new mobile application for a social media platform. The social media platform wants to enhance user engagement and provide new features to its users. The project needs to be completed within a strict timeline of one year. The requirements for the new mobile application are expected to evolve. The social media platform wants to release new features to its users as soon as they are developed and tested. By taking the waterfall model and the spiral model as examples, elaborate on the advantages and disadvantages of using each of these models for developing the social media platform.	CO5	L4
24.	Compute and prepare a function point value for a project with the following information domain charcteristics. No. of External inputs: 30 No. of External outputs: 52 No. of External inquiries: 22 No. of Logical files : 12 No. of external interface files: 2 Assume that the complexity adjustment values for the above are average (4, 5, 4,10, 7 respectively).	CO4	L6