RollNo. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.Tech (Full Time) - END SEMESTER EXAMINATIONS, NOV / DEC 2024

INFORMATION SCIENCE & TECHNOLOGY
. Semester III
IT5302 & SOFTWARE ENGINEERING
(Regulation2019)

Time:3hrs   Max.Marks: 100

CO1	Obtain an insight into the concepts of software engineering.
CO2	Analyze and resolve information technology problems through the application of systematic approaches and diagnostic tools for end to end solutions.
CO3	Elicit the requirements for real-time problems.
CO4	Estimate the cost of software, risks of handling, do software planning and configuration management.
CO5	Have knowledge about the role of software tester and be aware of testing methodologies and tools.

BL – Bloom's Taxonomy Levels
(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)
(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	What is the need for defining the phase in a Software Development Life Cycle?	2	CO1	L1 ·
2	Is software engineering applicable when WebApps are built? If so, how might it be modified to accommodate the unique characteristics of WebApps?	2	CO1	L4
3	Provide three examples of software projects that would be amenable to the incremental model.	2	CO2	L2
4	A software is developed for home safety. A safety alert is activated to the mobile phone through internet. What validating requirements are needed for the above scenario?	2	CO2	L3
5	How is domain analysis related to the concept of requirements patterns?	2	CO3	L2
6	What are the main uses for the requirements models?	2	CO3	L2
7	Give at least three examples in which black-box testing might give the impression that "everything's is OK", while white-box tests might uncover an error.	2	CO4	L3
8	What are functional and non-functional requirements?	2	CO4	L1
9	What are the various aspects of earned value analysis?	2	CO5	L1
10	What is a good test?	2 ·	CO5	L1

PART- B(5x 13=65Marks)

Q.No.	Questions	Marks	CO	BL
11 (a)	(i)Define agility. (ii)Explain agility and cost of change with diagram. (iii)List all agility principles.	3 5 5	CO1	L2
OR				
11 (b)	Discuss the advantages and disadvantages of the different types of software process models.	13	CO1	L2

Q.No.	Questions	Marks	CO	BL
12 (a)	Discuss some of the problems that occur when requirements must be elicited from three or four different customers.	13	CO2	L1
	OR			
12 (b) i	How do primary and secondary actors differ from one another in use case descriptions?	7	CO2	L1
ii	How can software engineers identify stakeholders during inception?	6	CO2	L1
13 (a) i	Describe the data objects, relationships and attributes for a network based course registration system of our university.	7	CO3	L2
ii	Draw a context-level model up to level 2 DFD for a web based order processing system for a computer store.	6	CO3	L4
	OR			
13 (b) i	How do analysis classes manifest themselves as elements of the solution space?	7	CO3	L4
ii	What guidelines can be applied for allocating responsibilities to classes?	6	CO3	L2
14 (a)	Illustrate the spiral process for user interface design.	13	CO4	L3
	OR			
14 (b)	Explain the various test strategies for conventional software.	13	CO4	L3
15 (a) i	Distinguish among Process, Project and Product Metrics?	6	CO5	L1
ii	Describe the Software Maintenance Phase?	7	CO5	L2
	OR			
15 (b) i	Mention any four risk mitigation strategies for Software Development	6	CO5	L1
ii	Describe the salient features of COCOMO Model for cost and size estimation of software projects?	7	CO5	L2

PART- C(1x 15=15Marks)
(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL

16. i	Consider the following program segment.
	int bin_search(int num)
	{
	    int 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);
	}
	Construct the control flow graph for this program segment. Determine the cyclomatic complexity for this program by various methods.
		7	CO4	L5

ii	Design an UI for a home automation system that is controlled by various sensors which is integrated to cloud & controlled by a mobile App.	8	CO3	L4