STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2023 – 2024)

M. Sc. DEGREE EXAMINATION, NOVEMBER 2023
INFORMATION TECHNOLOGY
FIRST SEMESTER

COURSE : MAJOR CORE
PAPER : SOFTWARE ENGINEERING
SUBJECT CODE: 23CS/PC/SE14
TIME : 3 HOURS **MAX. MARKS: 100**

Q. No.	SECTION A Answer all the questions (10 x 2=20)	CO	KL
1.	List out the umbrella activities associated in software engineering	CO1	K1
2.	Define Dependency with an example	CO1	K1
3.	What do you mean by information hiding?	CO1	K1
4.	Define baseline.	CO1	K1
5.	What is RMMM plan?	CO1	K1
6.	Discuss the disadvantages of waterfall model.	CO1	K2
7.	What are the different steps in Requirements Engineering process?	CO1	K2
8.	Distinguish between formal and informal technical reviews	CO1	K2
9.	What is the purpose of white box testing?	CO1	K2
10.	How does 40-20-40 rule helps in distribution of effort?	CO1	K2
Q. No.	**SECTION B** **Answer all the questions (4 x 5=20)**	**CO**	**KL**
11.	a) Meena wants to develop a rough working model of Library Management software before developing the actual software to understand the requirements. Which software lifecycle model would be appropriate and why? Identify the pros and cons of the model. **(OR)** b) Identify the software model that could be used to develop a well-known system where the requirements are clearly known before the development and will have no changes during development. Explain the appropriate software process model with its advantages and disadvantages.	CO2	K3

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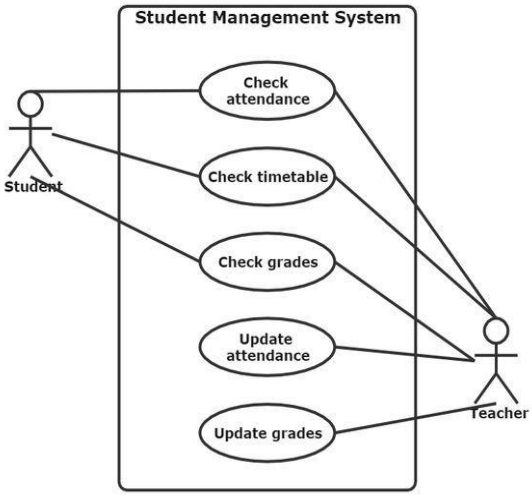
12.	a) Identify the use cases and actors from the use case diagram. Describe the relationships among actors and use cases in different scenarios.  **(OR)** The different states for the order object are as follows: Unprocessed order, Rejected order, Accepted order, Pending order and Fulfilled order. Explain and draw the appropriate UML diagram to show the different states of the order object	CO2	K3
13.	a) How is Function Point Metric used to estimate the size of a program? For a supermarket software, we find that there are two inputs, three outputs, one inquiry, two files, and no interfaces. Two files would be required, one for storing the customer details and another for storing the daily purchase records. Calculate the FP for the above problem. **(OR)** b) What is DRE? A software was tested for errors before delivery and 75 errors were found. The customer detected 35 errors after delivery. Calculate DRE.	CO2	K3
14.	a) Categorize the different quality costs with examples. **(OR)** b) Analyze the basic principles of Software project scheduling.	CO3	K4
Q. No.	**SECTION C** **Answer all the questions (6 x 10=60)**	**CO**	**KL**
15	a) Identify and explain the types of testing that is used to check the modular interfaces between different modules of a system? **(OR)** b) Explain Agile process and its principles and enumerate on how this model is cost effective compared to other software process models?	CO2	K3

16	a) Compare and contrast the different relationships that can exist among classes with examples. **(OR)** b) Identify and explain the different steps carried out in producing System Specification	CO3	K4
17	a) Analyze the different types of cohesion and arrange them from best to least efficient for an effective modular design. **(OR)** b) What is a software defect? Illustrate the use of Defect Amplification and removal model with examples before and after reviews	CO3	K4
18	a) Explain the different types of Software risks and identify the types of risks associated with a Library Management System. **(OR)** b) Distinguish between LOC and FP metric. Select the best project size estimation technique between LOC and FP that you would recommend and justify your answer.	CO4	K5

19	a) Discuss in detail about Path Coverage and its usefulness in testing. What are the steps involved in path coverage testing? Draw the flow graph for the below mentioned program and perform Path Coverage Testing.
	void find-maximum(int x,int y){
	if x > y:
	print("x is greater than y")
	elif x < y:
	print("x is less than y")
	else:
	print("x is equal to y")
	}
	print("End of Program")
	(OR)
	
	b) Consider the following Euclid's GCD Computation
	int computeGCD(x,y)
	int x,y;
	{
	while (x != y) {
	if (x>y) then
	x=x-y;
	else y=y-x;
	}
	return x;
	}
	Which of the following is the strongest structural test technique? Design the test cases using the below testing strategies.
	Statement coverage
	Branch coverage
	Condition coverage
		CO4	K5

20	a) **Renew Book Use Case**: Once the user selects renew book option, the user logs in for authentication and after successful login, the list of books for borrowing are displayed. Identify the various scenarios for the above use case and develop a sequence diagram for the book renewal use case for the Library Automation Software and also explain it. **(OR)** b) Tic-tac-toe is a computer game in which a human player and the computer make alternate moves on a 3 × 3 square. A move consists of marking a previously unmarked square. The player who is first to place three consecutive marks along a straight line (i.e., along a row, column, or diagonal) on the square wins. As soon as either of the human player or the computer wins, a message congratulating the winner should be displayed. If neither player manages to get three consecutive marks along a straight line, and all the squares on the board are filled up, then the game is drawn. The computer always tries to win a game. The three classes are: PlayMoveBoundary, PlayMoveController and Board class. Develop the class diagram for the above software and explain it.	CO5	K6

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