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**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF ENGINEERING**

**MAKEUP EXAMINATION – JAN 2023**

**Course Code:** CSE227

**Course Name:** Software Engineering and Project Management

**Program** : B. Tech

**Date:** 30-JAN-2023

**Time:** 01:00 PM – 04:00 PM

**Max Marks:** 100

**Weightage:** 50%

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**Instructions:**

- (i) Read all the questions carefully and answer accordingly.  
(ii) Answers should be visible and diagrams should be clear
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**Part A [Memory Recall Questions]**

**Answer all the Questions. Each question carries Two marks.**

**(10Qx 02M= 20M)**

1. Define the need for Software Engineering. (C.O.1) [Knowledge]
2. Compare functional and non-functional requirements. (C.O.2) [Knowledge]
3. Draw the model of Analysis to Design Transition. (C.O.2) [Knowledge]
4. Who are the stakeholders in a project? (C.O.4) [Knowledge]
5. Define cohesion. (C.O.2) [Knowledge]
6. Unit testing is done by whom? (C.O.3) [Comprehension]
7. Define verification. (C.O.3) [Knowledge]
8. Write any two advantages of Black box Testing? (C.O.3) [Knowledge]
9. What is Software Engineering and Project management? (C.O.1) [Knowledge]
10. What is Proactive Risk Management? (C.O.4) [Knowledge]

**Part B [Thought Provoking Questions]**

**Answer all the Questions. Each question carries Ten marks.**

**(05Qx10M=50M)**

11. Pantech Software computes the square root of an input integer. The software values in the range of 0 and 5000. Classify the equivalence classes and the black box test suite sample values. (C.O.No. 3) [Comprehension]
12. Presidency University wants to set a new laboratory for first year students. Classify the various types of architectural styles to set a laboratory in Presidency University with neat sketches. (C.O.No. 3) [Comprehension]

13. KIA is developing a machine learning software for providing self-driving capabilities for cars. Since the software has real world risks if it fails like accidents and injury to pedestrians what is the Risk Management Paradigm involved in the software development?

(C.O.No. 4) [Comprehension Level]

14. Assume that you are a software developer for TCS and TCS has won a contract to build a banking software for handling activities like customer onboarding, taking deposits for SWISS bank branches. You are asked to design use case diagram for the software. Also design the class diagram based on the usecase diagrams.

(C.O.No. 2) [Comprehension Level]

15. Assume you work for Tata consultancy services and have been assigned the task with developing ticket booking software for Indigo Airlines. Customers can book tickets through your software. a) Choose a list of actors and use cases from the problem statement provided above. b) Develop a use case diagram for booking and cancelling a ticket with the software.

### Part C [Problem Solving Questions]

Answer the Question. It carries Twenty marks.

(2Qx15M=30M)

16. Consider the below fragment and answer the questions listed below.

```
Public class Cyclomaticcomplexity
{
    Public static void main (String[] args)
    {
        Int var1=10;
        Int var2=9
        Int var3=8;
        Int var2=7;
        If (var1==10)
            {
                If (var2>var3)
                {
                    var2=var3;
                }
                else
                {
                    If var3>var4
                    {
                        var3=var4;
                    }
                    else
                    {
                        var4=var1;
                    }
                }
            }
        else
        {
```

```

        var1=var4;
    }
    System.out.println ("printing value for var1,var2,var3 and var4" +var1+ " "+var2+
"+var3+" "+var4);
}
}

```

- a. Construct a Control Flow Graph (CFG) for the above code
- b. Calculate the Cyclomatic complexity number C
- C. Identify and list independent paths in the CFG. (C.O.No. 3) [Comprehension]

17. IIT Bombay is building a placement website portal for students. The project manager has planned the time requiring for each main activity and has prepared a table. As a software engineering student you have to Calculate the start and finish dates and also draw a corresponding Gantt Chart for the same. (C.O.No. 4) [Application level]

Project start date: 12 June 2015			
Task Identifier	Task Description	Predecessor Task(s)	Time (days)
1	Establish project	-	2
2	Establish customer requirements	1	3
3	Produce software specification documents	2	4
4	Write test plans	3	1
5	Write code	3	2
6	Developer testing	5	2
7	System testing	4, 6	4
8	Write customer documentation	3	3