(Please write your Enrollment Number)

Enrollment No._____

End-Term Examination- ONLINE MODE

(CBCS/Non-CBCS)(SUBJECTIVE TYPE)

<Programme Name _B.Tech_____><_3____ SEM>

(DEC, 2021)

(SET A)

Subject Code:< BIT 203 >	Subject: < Software Engineering >
Time : 1 Hour 15 minutes	Maximum Marks : 30

Note: Q. 1 is compulsory. Attempt any one question from the rest.

Q1		**(5*3=15)**
	(a) Why Albrecht's function count method is more suitable over line of code for size estimation of software systems. Explain Albrecht's function count method with a suitable example.	
	(b) Describe the concept of module weakness. And what problems are likely to arise if two modules have high coupling?	
	(c) Consider the problem of railway reservation system and design level 1 DFD for the same.	
Q2		**(7.5+7.5= 15)**
	(a) Assume that the initial failure intensity is 10 failures/CPU hr. The failure intensity decay parameter is 0.03/failure. We have experienced 75 failures upto this time. Find the failures experienced and failure intensity after 25 and 50 CPU hrs. of execution.	
	(b) Write a program for the calculation of roots of a quadratic equation. Generate cross reference list for the program and also calculate helstead matrices for this program.	
Q3		**(7.5+7.5= 15)**
	(a) Consider a program given below for the selection of the largest of three numbers:	

```
main()
    {
      float A,B,C;
      printf("Enter three values\n");
      scanf("%f%f%f", &A,&B,&C);
      printf("\n largest value is");
      if (A>B)
            {
                  if(A>C)
                        printf("%f\n",A);
                  else
                        printf("%f\n",C);
            }
            else
            {
                  if(C>B)
                        printf("%f\n",C);
                  else
                        printf("%f\n",B);
            }
      }
```

Design cause effect graph for the same. Also design test cases using the equivalence class testing technique.

(b) Suppose a system for office automation is to be designed. It is clear from requirements that there will be five modules of size 0.5 KLOC, 1.5 KLOC, 2.0 KLOC, 1.0 KLOC and 2.0 KLOC respectively. Complexity, and reliability requirements are high. Programmer's capability and experience is low. All other factors are of nominal rating. Use COCOMO model to determine overall cost and schedule estimates. Also calculate the cost and schedule estimates for different phases.

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End-Term Examination- ONLINE MODE

(CBCS/Non-CBCS)(SUBJECTIVE TYPE)

<Programme Name __B.Tech_____> <__3___ SEM>

(DEC, 2021)

(SET B)

Subject Code:< BIT 203 >	Subject: < Software Engineering >
Time : 1 Hour 15 minutes	Maximum Marks : 30

Note: Q. 1 is compulsory. Attempt any one question from the rest.

Q1		(5*3=15)
	(a) Explain with the help of an example, how we can calculate amount of data in a program.	
	(b) Discuss the present state of practices in requirement engineering. Suggest few steps to improve the present state of practice.	
	(c) What is the significance of software crisis in reference to software engineering discipline. Explain with some real world examples.	
Q2		(5+10= 15)
	(a) Assume that the initial failure intensity is 6 failures/CPU hr. The failure intensity decay parameter is 0.02/failure. We assume that 45 failures have been experienced. Calculate the current failure intensity.	
	(b) Write a program in C for the calculation of the roots of a quadratic equation, Find out all software science metrics for both the programs.	
Q3		(7.5+7.5= 15)

(a) Admission to a professional course is subject to the following conditions:

(a) Marks in Mathematics >=	60
(b) Marks in Physics >=	50
(c) Marks in Chemistry >=	40
(d) Total in all three subjects >=	200
Or	
Total in Mathematics and Physics >=	150

If aggregate marks of an eligible candidate are more than 225, he/she will be eligible for honors course, otherwise he/she will be eligible for pass course.

The program reads the marks in the three subjects and generates the following outputs:
(a) Not Eligible (b) Eligible to Pass Course (c) Eligible to Honors Course

Design test cases using decision table testing technique.

(b) Design cause effect graph for the above problem. Also design test cases for the same according to equivalence class testing technique.

SOFTWARE ENGINEERING (END-TERM)

(a) What is the significance of software crisis in reference to software engineering discipline. List some examples.

(b) Describe any two Software reliability models.

Assume that the initial failure intensity is 6 failures/CPU hr. The failure intensity decay parameter is 0.02/failure. We assume that 45 failures have been experienced. Calculate the current failure intensity by using basic time execution model.

(c) What are the linkages between data flow diagram and E–R diagram? Explain with a real-time software system example.

(a) In Intermediate COCOMO, which mode among the organic, semidetached and embedded represents complex techniques? Explain with example.

Suppose a system for office automation is to be designed. It is clear from requirements that there will be five modules of size 0.5 KLOC, 1.5 KLOC, 2.0 KLOC, 1.0 KLOC and 2.0 KLOC respectively. Complexity, and reliability requirements are high (1.15, 1.15). Programmer's capability and experience is low (1.17, 1.07). All other factors are of nominal rating (1.0). Use COCOMO model to determine overall cost and schedule estimates.

(b) What are the objectives of Software Re-Engineering? Distinguish between Reverse Engineering and Re-Engineering.