NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA

THEORY EXAMINATION **ROLL NO.**_____

Date of the Examination: 10-12-2019 Programme: **....B.Tech.....**

Semester...3rd..... **Subject: Software Engineering**

Course No.....ITPC-27..... **Maximum Marks...50.....**

Number of Questions to be attempted...**05...** Time allowed ...**3 Hours.....**

Total No. of Questions.....05..... **Total No. of Pages used...2....**

Instructions: 1. All questions are compulsory.
2. Marks for every part of question are indicated against it.

Q1.	(A) Explain Agile software development life cycle model with an example, advantages and disadvantages. (B) What is software? Differentiate between system and application software. (C) What are various characteristics of a software?	5+3+2
Q2.	(A) Write a short note on various types of requirement. (B) Explain any two of the following function oriented design terminologies with example. (a) Data flow diagrams. (b) Data dictionaries (c) Structure Charts	4+6
Q3.	(A) A project size of 200 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the effort, development time, average staff size and productivity of the project. (B) Explain modularity by defining all the types of coupling and cohesion.	4+6
Q4.	(A) Explain capability maturity model with all its levels. (B) Explain the software maintenance process with diagram. **OR**	5+5
Q4.	(A) There are 100 errors estimated to be present in a program. We have experienced 60 errors. Use Jelinski-Moranda model to calculate failure intensity with a given value of Ø = 0.03. What will be failure intensity after the experience of 80 errors. (B) Derive expression for Basic Execution Time Model.	5+5

Q5.	(A) Consider the following program for the classification of a triangle. Draw the flow graph and DD path graph. Also find the independent paths from the DD path graph.
	
	#include <stdio.h>
	1. int main()
	2 {
	3 int a,b,c,validInput=0;
	4 printf("Enter the side 'a' value:");
	5 scanf("%d",&a);
	6 printf("Enter the side 'b' value:");
	7 scanf("%d",&b);
	8 printf("Enter the side 'c' value:");
	9 scanf("%d",&c);
	10 if((a>0) && (a<=100) && (b>0) && (b<=100) && (c>0) && (c<=100)) {
	11 if ((a+b)>c) && ((c+a)>b) && ((b+c)>a)) {
	12 validInput =1;
	13 }
	14 }
	15 else {
	16 validInput = -1;
	17 }
	18 If (validInput = = 1) {
	19 If ((a==b) && (b==c)) {
	20 printf("The triangle is equilateral");
	21 }
	22 else if ((a==b) || (b==c) || (c==a)) {
	23 printf("The triangle is isosceles");
	24 }
	25 else {
	26 printf("The triangle is scalene");
	27 }
	28 }
	29 else if (validInput = =0) {
	30 printf("The value do not constitute a Triangle");
	31 }
	32 else {
	33 printf("The inputs belong to invalid range");
	34 }
	35 getch();
	36 return 1;
	37 }
	
	(B) Consider the classification of triangle problem given in above question with its DD path graph. Find all the possible values of cyclomatic complexity.
	
	(C) What is debugging? Explain its various approaches.
		4+3+3