NARULA INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT

B.Tech./CSE/EVEN/6th/R18/ CS603/2021-2022
YEAR: 2022

SOFTWARE ENGINEERING
CS603

TIME ALLOTTED: 3 HOURS FULL MARKS: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)

1. Answer any *ten* from the following, choosing the correct alternative of each question: 10×1=10

SL	Question	Marks	Co
(i)	To compute function points (FP), the following relationship is used FP = Count - total x (0.65 + 0.01 x ∑ (Fi) where Fi (i = 1 to n) are value adjustment factors (VAF) based on n questions. The value of n is a) 12 b) 14 c) 16 d) 18	1	3
(ii)	What is Software Engineering? a) Application of engineering principles to the design a software b) Designing a software c) Testing a software d) Produce software	1	1
(iii)	To achieve a good design, modules should have a) low cohesion and low coupling b) low cohesion and high coupling c) high cohesion and low coupling d) high cohesion and high coupling	1	4
(iv)	The best type of cohesion is a) Coincidental b) Logical c) Sequential d) Functional	1	3
(v)	COCOMO stands for a) Composite Cost Model b) Constructive Cost Model c) Constructive Composite Model d) Comprehensive Construction Model	1	3
(vi)	CMM stands for a) Capability Management Module b) Conservative Maturity Model c) Capability Maturity Module d) Capability Maturity Model	1	4

	(vii)	Which testing is an integration testing approach that is commonly used when "shrink-wrapped" software products are being developed? a) Regression Testing b) Integration testing c) Smoke testing d) Validation testing	1	5
	(viii)	What type of software testing is generally used in Software Maintenance? a) Regression Testing b) System Testing c) Integration Testing d) Unit Testing	1	5
	(ix)	Statement and branch coverage metrics are part of a) Analysis Model b) Testing c) Design Model d) Source Code	1	4
	(x)	Which of the following life cycle model can be chosen if the development team has less experience on similar projects? a) Spiral b) Waterfall c) RAD d) Iterative Enhancement Model	1	1
	(xi)	The construction of object-oriented software begins with the creation of a) design model b) analysis model c) code levels d) both design and analysis model	1	3
	(xii)	Alpha testing is done at a) Developer's end b) User's end c) Developer's & User's end d) None of the mentioned	1	3

GROUP – B
(Short Answer Type Questions)
(Answer any three of the following) 3 x 5 = 15

	SL	Question	Marks	Co
2.	(i)	What are cohesion and coupling ?	2	4
	(ii)	Discuss different kinds of cohesion.	3	4
3.		Explain the project planning activities with a net diagram.	5	2
4.		The basic COCOMO applies the parameterized equation without much detailed consideration of project characteristics. Basic COCOMO MM = a * (KLOC) ^b for software projects.	5	3

		The size of an organic type software system to be developed by SCV Consultancy Services has been estimated to be 32000 LOC. Assume that the average salary of software developer is 15000/- per months. Determine the estimated the effort is required to develop the software product, the nominal time, and the cost to develop the product.		
5.	(i)	What are the various classifications of failures? Briefly explain it.	2	3
	(ii)	Briefly explain the basic issues of Software Reuse.	2	2
	(iii)	Define Software Quality	1	2
6.	(i)	Explain Data-Dictionary.	2	2
	(ii)	What is integration testing? Explain with suitable example.	2	4
	(iii)	What is layered architecture?	1	

GROUP – C
(Long Answer Type Questions)

(Answer any three of the following) 3 x 15 = 45

SL		Question	Marks	Co
7.	(i)	What is feasibility study? What are the contents we should contain in the feasibility report?	5	1
	(ii)	Explain the different phases involved in Iterative waterfall life cycle model.	8	1
	(iii)	What are the advantages of iterative waterfall model	2	1
8.	(i)	Consider a software project with 7 activities T1 to T7. Duration of the 7 activities in days is 15, 45, 30, 105, 45, 120, and 60 respectively. The task T2, T3and T7 can start when T1 is completed. The T4 can start when T2 is completed. T5 can start when T3 is completed. T6 can start when T4 and T5 are completed. Draw the complete network activity diagram.	5	3
	(ii)	Determine the ES ,EF and LS LF for every task	5	3
	(iii)	What is Control flow graph?	2	5
	(iv)	Calculate cyclomatic complexity for largest of three numbers.	3	5
9.	(i)	Distinguish between Alpha and Beta Testing.	5	3
	(ii)	Assume that the size of an organic type software product has been estimated to be 35,000 lines of source code. Assume that the average salary of a software developer is Rs. 10,000 per month. Determine the effort required to develop the software product, the nominal development time, and the cost to develop the product.	5	3

	(iii)	Compare top down and bottom up integration testing	5	3
10.	(i)	What do you mean by software quality and reliability?	4	2
	(ii)	What are the difference between verification and validation?	4	4
	(iii)	Explain what are the different kinds of system testing that are usually performed on large software product.	7	3
11.		Write short notes on (Any three)		
	(i)	Basic COCOMO Model	5	2
	(ii)	Function Point metric	5	4
	(iii)	PERT chart	5	3
	(iv)	UML Diagram	5	3
	(v)	Risk management	5	2