

**B.TECH./CSE/EVEN/6/CS603/2020-2021**  
PAPER TYPE: S+RS  
YEAR: 2021

## **SOFTWARE ENGINEERING**

REGULATION:16

### **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. NO.	Question	Marks	CO No.
(i)	The UML supports event-based modeling using _____ diagrams a) Deployment b) Collaboration <b>c) State chart</b> d) All of the mention	1	2
(ii)	Which one is NOT a measure of size estimation for software product? <b>a) Cyclomatic complexity</b> b) Halstead's program length c) Function point d) Line of code	1	3
(iii)	To compute function points (FP), the following relationship is used $FP = Count - total \times (0.65 + 0.01 \times \sum(F_i))$ where $F_i$ ( $i = 1$ to $n$ ) are value adjustment factors (VAF) based on $n$ questions. The value of $n$ is a) 12 <b>b) 14</b> c) 16 d) 18	1	1
(iv)	Software Maintenance includes a) Error correction b) Enhancements of capabilities c) Deletion of obsolete capabilities <b>d) All of the mention</b>	1	5
(v)	COCOMO stands for a) Composite Cost Model <b>b) Constructive Cost Model</b> c) Constructive Composite Model d) Comprehensive Constriction Model	1	3

**NARULA INSTITUTE OF TECHNOLOGY**  
An Autonomous Institute under MAKAUT

(vi)	Which of the following risk is the failure of connection in purchased mobile component to perform as expected? a) Technical risk b) Project risk c) Business risk d) Programming risk	1	4
(vii)	C F unction points can be calculated by a) UFP * FAC b)UFP * TCF c)UFP * Cost d)UFP * Productivity	1	3
(viii)	Structured Analysis is based on the principles of a) Top-down decomposition approach b) Divide and conquer principle c) Graphical representation of results using DFDs d) All of the mentioned	1	1
(ix)	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
(x)	Which one is not a risk management activity? a) Risk identification b) Risk generation c) Risk control d) Risk assessment	1	4
(xi)	CMM stands for a) Capability Management Module b) Conservative Maturity Model c) Capability Maturity Module d) Capability Maturity Model	1	4
(xii)	Maintenance cost=ACT*Development cost, where ACT(Annual Change Traffic) is a)ACT=(KLOC added+KLOCdeleted)/KLOCtotal  b)ACT=(KLOC added-KLOCdeleted)*KLOCtotal  c)ACT=(KLOC added*KLOCdeleted)+KLOCtotal  d)ACT=(KLOC added/KLOCdeleted)+KLOCtotal	1	5

**GROUP – B\***  
(Short Answer Type Questions)

Answer any *three* from the following: 3×5=15

SL. NO.		Marks	CO No.
2.	(a) Write a program to find the GCD of two numbers.  Draw the Control Flow Graph(CFG) and there by derived the	2	4

**NARULA INSTITUTE OF TECHNOLOGY**  
An Autonomous Institute under MAKAUT

cyclometric complexity of the saided program.

- |    |     |   |     |   |
|----|-----|---|-----|---|
|    | (b) | Write down the advantages and disadvantages of different software development models.                   | 3   | 1 |
| 3. | (a) | What is the major role of software project manager? What do you mean by Work Breakdown Structure (WBS)? | 3   | 3 |
|    | (b) | Differentiate between black box testing and white box testing.  | 2   | 4 |
| 4. | (a) | What do you mean by fault, failure and error?   | 2   | 5 |
|    | (b) | What is SRS? Briefly explain the characteristics of a good SRS.   | 1+2 | 2 |
| 5. | (a) | Write a program to find the GCD of two numbers.   | 2   | 4 |
|    |     | Draw the Control Flow Graph(CFG) and there by derived the cyclometric complexity of the saided program. |     |   |
|    | (b) | Write down the advantages and disadvantages of different software development models.                   | 3   | 1 |
| 6. |     | What is the major role of software project manager? What do you mean by Work Breakdown Structure (WBS)? | 3+2 | 3 |

**GROUP – C\***  
**(Long Answer Type Questions)**

Answer any *three* from the following: **3×15=45**

- | SL. NO. | Marks | CO No. |
|---------|-------|--------|
| 7. (a)  | 4+4   | 3      |
- |       |   |   |   |   |   |   |   |    |   |     |     |
|-------|---|---|---|---|---|---|---|----|---|-----|-----|
| Act.  | A | B | C | D | E | F | G | H  | I | J   | K   |
| Prec. | - | - | - | A | B | B | C | E  | D | F,G | H,I |
| Time  | 4 | 7 | 3 | 6 | 4 | 7 | 6 | 10 | 3 | 4   | 2   |
- Consider the above software project.
- a) Draw the Network diagram for given project.  
b) Draw the GANTT chart for given project and find the critical path.
- |     |   |   |   |
|-----|---|---|---|
| (b) | Consider a software project with 7 activities T1 to T7. Duration of the 7 activities in days are 15,45,30,105,45,120,60 respectively. T2 ,T3and T7 can start when T1 is completed.T4 can start when T2 is completed. T5 can start when both T3 is completed. T6 can start when T4 and T5 are completed. Find the network diagram and critical path. | 7 | 4 |
|-----|---|---|---|
- |    |     |  |   |   |
|----|-----|--|---|---|
| 8. | (a) | Explain the Prototyping Model.                           | 6 | 1 |
|    | (b) | What are the advantage and disadvantage of Spiral Model? | 5 | 2 |
|    | (c) | Why spiral model considered to be a meta model?          | 4 | 3 |
- |    |     |  |       |   |
|----|-----|--|-------|---|
| 9. | (a) | What is DFD? Briefly explain the level 0 and level 1 DFD | 1+2+4 | 4 |
|    | (b) | What is code walkthrough and code inspection?            | 8     | 3 |

**NARULA INSTITUTE OF TECHNOLOGY**  
**An Autonomous Institute under MAKAUT**

Briefly explain the characteristics of a good coding standard.

10.	(a)	What is glass box testing?	1+2+2	3
		Distinguish between alpha testing and beta testing		
		Briefly explain unit testing.		
	(b)	What do you mean by software quality and reliability?	3	4
	(c)	What are the difference between verification and validation?	3	4
	(d)	Explain what are the different kinds of system testing that are usually performed on large software product.	4	4
11		<b>Write short notes on (Any three)</b>	3×5	4
	a)	CASE tools		5
	b)	Six sigma		3
	c)	Intermediate COCOMO		2
	d)	UML Diagram		1
	e)	Feasibility study		