# GURU NANAK INSTITUTE OF TECHNOLOGY
## An Autonomous Institute under MAKAUT
## 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)

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

| | | Marks | CO No. |
|---|---|---|---|
| 1. (i) | Software is defined as<br>(a) set of programs, documentation & configuration of data<br>(b) set of programs<br>(c) documentation and configuration of data<br>(d) Application | 1 | CO1 |
| (ii) | What is Software Engineering?<br>(a) Application of engineering principles to the design a software<br>(b) Designing a software<br>(c) Testing a software<br>(d) Produce software | 1 | CO1 |
| (iii) | In function point analysis, the number of complexity adjustment factors is<br>(a) 14.<br>(b) 12.<br>(c) 13<br>(d) 10 | 1 | CO2 |
| (iv) | The best type of cohesion is<br>(a) Coincidental<br>(b) Logical<br>(c) Sequential<br>(d) Functional | 1 | CO3 |
| (v) | The worst type of coupling is<br>(a) Data coupling.<br>(b) Control coupling.<br>(c) Stamp coupling.<br>(d) content coupling | 1 | CO3 |

| | | | |
|---|---|---|---|
| (vi) | What are the features of Software Code?<br>(a) Modularity<br>(b) Accessibility<br>(c) Simplicity<br>(d) Layered | 1 | CO3 |
| (vii) | Classes and interfaces are a part of<br>(a) Structural view<br>(b) Behavioral view<br>(c) Implementation view<br>(d) Environmental view | 1 | CO4 |
| (viii) | Statement and branch coverage metrics are part of<br>(a) Analysis Model<br>(b) Testing<br>(c) Design Model<br>(d) Source Code | 1 | CO4 |
| (ix) | Cost and schedule are a part of<br>(a) Product Metrics<br>(b) Project Metrics<br>(c) Process Metrics<br>(d) People Metrics | 1 | CO2 |
| (x) | An object encapsulates<br>(a) Data<br>(b) Behavior<br>(c) State<br>(d) Both Data and behavior | 1 | CO3 |
| (xi) | The most important feature of spiral model is<br>(a) Requirement analysis.<br>(b) Risk management.<br>(c) Quality management.<br>(d) Configuration management | 1 | CO1 |
| (xii) | The construction of object-oriented software begins with the creation of<br>(a) design model<br>(b) analysis model<br>(c) code levels<br>(d) both design and analysis model | 1 | CO3 |

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

| | | Marks | CO No. |
|---|---|---|---|
| 2. | Identify the lifecycle models would you prefer for developing the following applications? Justify your answer.<br>1) Banking application<br>2) Online ticket booking application | 5 | CO1 |
| 3. | Explain different symbols used in DFD? Differentiate between logical DFD and Physical DFD | 5 | CO2 |
| 4. | Explain the project planning activities with a net diagram. | 5 | CO2 |
| 5. | What is software metrics explain in detail? State the method for computing of FP. | 5 | CO3 |
| 6.a) | What is verification and validation? Draw the control flow graph for the below code:<br>*int compute_gcd(int x, int y)*<br>*{*<br>*While(x=!y) { if(x>y) then x=y; else y=y-x;}*<br>*return x;*<br>*}* | 5 | CO4 |
| b) | What is testing? Explain the types and levels of testing. | 5 | CO4 |

## GROUP – C
### (Long Answer Type Questions)
(Answer any *three* of the following) **3 x 15 = 45**

| | | Marks | CO No. |
|---|---|---|---|
| 7. a) | Explain different phases of SDLC with diagram. | 5 | CO1 |
| b) | Explain prototype model with diagram and write the advantages of prototype over waterfall model. | 10 | CO1 |
| 8. a) | Define SRS. Explain the characteristics of a good SRS document. | 5 | CO2 |
| b) | Explain different types of cohesion and coupling in detail. | 10 | CO2 |
| 9. a) | Distinguish between Alpha and Beta Testing. | 5 | CO3 |
| b) | 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 | CO3 |
| c) | Compare top down and bottom up integration testing. | 5 | CO3 |
| 10. a) | Distinguish between functional and nonfunctional requirements with example. | 8 | CO3 |
| b) | Draw the structure chart for the computation of root mean square (RMS). | 7 | CO3 |
| 11. | Write short notes on any ***three*** of the following: | 3x5=15 | |
| a) | Integration testing | 5 | CO4 |
| b) | COCOMO Model | 5 | CO3 |
| c) | Risk Management | 5 | CO4 |
| d) | PERT Chart | 5 | CO2 |
| e) | Use Case Diagram | 5 | CO2 |