



# HALDIA INSTITUTE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION UNDER MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL)

**Paper Code: PCC-CS 601**

**Paper Name: Software Engineering**

*Time Allotted: 2 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. Choose the correct alternatives from the followings:**

**30 x 1 = 30**

(i) Software is defined as \_\_\_\_\_ [CO1]

- a) set of programs, documentation & configuration of data      b) set of programs
- c) documentation and configuration of data      d) None of the mentioned

(ii) CASE stands for [CO5]

- a) Computer-Aided Software Engineering      b) Control Aided Science and Engineering
- c) Cost Aided System Experiments      d) None of the mentioned

(iii) \_\_\_\_\_ is defined as the process of generating analysis and designing documents? [CO6]

- a) Re-engineering      b) Reverse engineering
- c) Software re-engineering      d) Science and engineering

(iv) The activity that distributes estimated effort across the planned project duration by allocating the effort to specific software developing tasks is \_\_\_\_\_ [CO4]

- a) Project scheduling      b) Detailed schedule      c) Macroscopic schedule
- d) None of the mentioned

(v) What are the features of Software Code? [CO5]

- a) Simplicity
- b) Accessibility
- c) Modularity
- d) All of the above

(vi) \_\_\_\_\_ is a software development activity that is not a part of software processes.

- a) Validation
  - b) Specification
  - c) Development
  - d) Dependence
- [CO6]

(vii) Define Agile scrum methodology. [CO2]

- a) project management that emphasizes incremental progress
- b) project management that emphasizes decremental progress
- c) project management that emphasizes neutral progress
- d) project management that emphasizes no progress

(viii) What is a Functional Requirement? [CO6]

- a) specifies the tasks the program must complete
- b) specifies the tasks the program should not complete
- c) specifies the tasks the program must not work
- d) All of the mentioned

(ix) Why do bugs and failures occur in software? [CO6]

- a) Because of Developers
- b) Because of companies
- c) Because of both companies and Developers
- d) None of the mentioned

(x) Attributes of good software is \_\_\_\_\_ [CO1, CO3]

- a) Development
- b) Maintainability & functionality
- c) Functionality
- d) Maintainability

(xi) Which of the following are CASE tools? [CO6]

- a) Central Repository Tools
- b) Integrated Case Tools
- c) Upper Case Tools
- d) All of the mentioned

(xii) \_\_\_\_\_ is a software development life cycle model that is chosen if the development team has less experience on similar projects. [CO3]

- a) Iterative Enhancement Model
- b) RAD
- c) Spiral
- d) Waterfall

(xiii) \_\_\_\_\_ is not suitable for accommodating any change? [CO2]

- a) RAD Model                      b) Waterfall Model      c) Build & Fix Model                      d) Prototyping Model

(xiv) Which one of the following is not a software process quality? [CO6]

- a) Visibility                      b) Timeliness                      c) Productivity                      d) Portability

(xv) Cleanroom software development process complies with the operational analysis principles by using a method called known as [CO6]

- a) referential transparency                      b) degenerative error correction                      c) box structure specification  
d) none of the mentioned

(xvi) \_\_\_\_\_ is an indirect measure of software development process. [CO2]

- a) Cost                      b) Effort Applied                      c) Efficiency                      d) All of the mentioned

(xvii) \_\_\_\_\_ specification is also known as SRS document. [CO2, CO6]

- a) white-box                      b) grey-box                      c) black-box                      d) none of the mentioned

(xviii) Software Debugging is known as \_\_\_\_\_ [CO3]

- a) identifying the task to be computerized                      b) creating program code                      c) creating the algorithm  
d) finding and correcting errors in the program code

(xix) What is system software? [CO5]

- a) computer program                      b) Testing                      c) AI                      d) IOT

(xx) Which of the following is not a project factor that should be considered when planning the structure of software developing teams? [CO6]

- a) The rigidity of the delivery date                      b) The degree of sociability required for the project  
c) High frustration caused by personal, business, or technological factors that causes friction among team members  
d) The difficulty of the problem to be solved

(xxi) Which of the following is the task of project indicators: [CO6]

- a) help in assessment of status of ongoing project                      b) track potential risk  
c) help in assessment of status of ongoing project & track potential risk  
d) none of the mentioned

(xxii) The intent of project metrics is: [CO3]

- a) minimization of development schedule
- b) for strategic purposes
- c) assessing project quality on ongoing basis
- d) minimization of development schedule and assessing project quality on ongoing basis

(xxiii) Which of the following is not an information domain required for determining function point in FPA? [CO3]

- a) Number of user Input
- b) Number of user Inquiries
- c) Number of external Interfaces
- d) Number of errors

(xxiv) Usability can be measured in terms of: [CO3]

- a) Intellectual skill to learn the system
- b) Time required to become moderately efficient in system usage
- c) Net increase in productivity
- d) All of the mentioned

(xxv) Function Point Computation is given by the formula [CO3]

- a)  $FP = [\text{count total} * 0.65] + 0.01 * \text{sum}(Fi)$
- b)  $FP = \text{count total} * [0.65 + 0.01 * \text{sum}(Fi)]$
- c)  $FP = \text{count total} * [0.65 + 0.01] * \text{sum}(Fi)$
- d)  $FP = [\text{count total} * 0.65 + 0.01] * \text{sum}(Fi)$

(xxvi) Size and Complexity are a part of [CO3]

- a) Product Metrics
- b) Process Metrics
- c) Project Metrics
- d) All of the mentioned

(xxvii) Software Maintenance includes [CO5]

- a) Error corrections
- b) Enhancements of capabilities
- c) Deletion of obsolete capabilities
- d) All of the mentioned

(xxviii) Which of the following approaches are used to achieve reliable systems? [CO6]

- a) Fault prevention
- b) Fault removal
- c) Fault tolerance
- d) All of the mentioned

(xxix) How many levels are present in CMM? [CO5]

- a) three
- b) four
- c) five
- d) six

(xxx) What is normally considered as an adjunct to the coding step [CO4]

- a) Integration testing
- b) Unit testing
- c) Completion of Testing
- d) Regression Testing

**Group – B**

**(Multiple Choice Type Questions)**

**2. Choose the correct alternatives from the followings:**

**10 x 2 = 20**

(i) The software life cycle can be said to consist of a series of phases. The classical model is referred to as the waterfall model. Which phase is defined as “The concept is explored and refined, and the client’s requirements are elicited?” [CO2]

- a) Requirements    b) Specification    c) Design    d) Implementation

(ii) In the maintenance phase the product must be tested against previous test cases. This is known as \_\_\_\_\_ testing. [CO5]

- a) Unit                      b) Integration    c) Regression    d) Module

(iii) The relationship between a derived class (or subclass) and base class is referred to as [CO5]

- a) Association    b) Inheritance    c) Polymorphism    d) Instantiation

(iv) In the classical chief programmer team approach, the team member responsible for maintaining the detailed design and coding is [CO6]

- a) The chief programmer                      b) The programming secretary
- c) A specialized function that exists outside ‘the team’
- d) The individual coder (i.e. programmer)

(v) The advantage of following the IEEE Standard for drawing up a Software Project Management Plan (SPMP) – see IEEE Standard 1059.1 [CO6]

- a) It is drawn up by representatives from major software development organizations
- b) It is designed for all types of software products
- c) It is a framework that can be used irrespective of process model or specific techniques
- d) All of the above

(vi) What is the essence of software engineering? [CO1]

- a) Requirements Definition, Design Representation, Knowledge Capture and Quality Factors

- b) Maintaining Configurations, Organizing Teams, Channeling Creativity and Planning Resource Use
- c) Time/Space Tradeoffs, Optimizing Process, Minimizing Communication and Problem Decomposition
- d) Managing Complexity, Managing Personnel Resources, Managing Time and Money and Producing Useful Products

(vii) What are the major activities of the spiral model of software engineering? [CO2]

- a) Planning, Risk Analysis, Engineering, Customer Evaluation
- b) Defining, Prototyping, Testing, Delivery
- c) Requirements
- d) Quick Design, Build Prototype, Evaluate Prototype, Refine Prototype

(viii) Which of the following projects would be a good one for adopting the prototyping paradigm for software development? [CO2]

- a) Accounting System      b) Spreadsheet      c) Automobile Cruise Control
- d) Algebra Tutor

(ix) A process view in software engineering would consider which of the following [CO4]

- a) Product performance      b) Staffing      c) Functionality
- d) Reliability

(x) Which of the following is not a description of planning? [CO6]

- a) Planning is used to find credible ways to produce results with limited resources and limited schedule flexibility
- b) Planning is finding new personnel resources to support labor intensive development
- c) Planning is identifying and accommodating the unforeseen
- d) Planning is negotiating compromises in completion dates and resource allocation

**Group – C**  
**(Short Answer Type Questions)**

**3. Attempt any four from the followings:****4 x 5 = 20**

- i) What is SRS? Briefly explain the characteristics of a good SRS. [CO2] (2 +3)
- ii) 'Consider Roxy Roll Centre, a restaurant near College Street, Kolkata, owned by Sourav. Some are convinced that its Egg-Chicken Rolls are the best in College Street. Many people, especially Presidency University students and faculties, frequently eat at Roxy. The restaurant uses an information system that takes customer orders, sends the orders to the kitchen, monitors goods sold and inventory and generates reports for management.'
- Draw the context diagram and Level 1 DFD for the Roxy's food ordering system. Also draw a Level 2 DFD that will show the decomposition of any one process from Level 1 DFD. [CO4] (1+2+2)
- iii) How are the concepts of Cohesion and Coupling useful in arriving at good software design? [CO4] (5)
- iv) Compare function oriented and object oriented approach for software design with example [CO4] (5)
- v) What are stress testing and volume testing? Why is testing important? (3+2) [CO5]
- vi) Distinguish between software verification and software validation. When during the software lifecycle is verification and validation performed? (5) [CO2]

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Signature of the Paper Setter/Moderator

**Answer Key:****Group – A**

|                 |          |           |            |           |           |
|-----------------|----------|-----------|------------|-----------|-----------|
| <u>1.</u> (i) a | (ii) a   | (iii) b   | (iv) a     | (v) c     | (vi) d    |
| (vii) a         | (viii) a | (ix) c    | (x) b      | (xi) d    | (xii) c   |
| (xiii) b        | (xiv) d  | (xv) c    | (xvi) c    | (xvii) c  | (xviii) d |
| (xix) a         | (xx) b   | (xxi) c   | (xxii) d   | (xxiii) d | (xxiv) d  |
| (xxv) b         | (xxvi) a | (xxvii) d | (xxviii) d | (xxix) c  | (xxx) b   |

**Group – B**

|                 |          |         |        |       |        |
|-----------------|----------|---------|--------|-------|--------|
| <u>2.</u> (i) a | (ii) c   | (iii) b | (iv) d | (v) d | (vi) d |
| (vii) a         | (viii) d | (ix) b  | (x) b  |       |        |

**Group – C**

|               |      |       |      |     |      |
|---------------|------|-------|------|-----|------|
| <u>3.</u> (i) | (ii) | (iii) | (iv) | (v) | (vi) |
|---------------|------|-------|------|-----|------|