

Roll No.-----

प्रश्नपुस्तिका क्रमांक  
Question Booklet No.

598443

O.M.R. Serial No.

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BCA (Fourth Semester) Examination, 2024-25

(NEP)

(BCA4003)

SOFTWARE ENGINEERING

K-698

Paper Code

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(To be filled in the  
OMR Sheet)

प्रश्नपुस्तिका सीरीज  
Question Booklet Series

C

Time : 1:30 Hours ]

[ Maximum Marks-75

**Instructions to the Examinee :**

1. Do not open the booklet unless you are asked to do so.
2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.
3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

(Remaining instructions on the last page)

**परीक्षार्थियों के लिए निर्देश :**

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।
3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हो या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(शेष निर्देश अन्तिम पृष्ठ पर)

1. Which of these is NOT a component of software configuration management?
  - (A) Configuration identification
  - (B) Configuration control
  - (C) Risk assessment
  - (D) Configuration auditing
2. Which of these is a key advantage of object-oriented design?
  - (A) Increased hardware dependency
  - (B) Difficulty in reusing code
  - (C) Improved modularity and maintainability
  - (D) Faster development without testing
3. Which of the following best describes abstraction in OOD?
  - (A) Focusing on unnecessary details
  - (B) Hiding the internal implementation and showing only relevant features
  - (C) Removing all logic from a class
  - (D) Making code more complex
4. Polymorphism in OOD allows:
  - (A) Data to be stored in multiple locations
  - (B) Objects to take many forms
  - (C) Software to be less secure
  - (D) Multiple classes to use the same variable name
5. What does inheritance allow in object-oriented design?
  - (A) Code duplication
  - (B) Objects to behave randomly
  - (C) One class to acquire properties of another class
  - (D) Faster memory access

6. Which of the following is NOT a basic principle of Object-Oriented Design?
- (A) Encapsulation
  - (B) Inheritance
  - (C) Modularity
  - (D) Linear Programming
7. What is 'encapsulation' in the context of software engineering?
- (A) The practice of exposing all data and functions to other modules
  - (B) Hiding the internal state and requiring all interaction to be performed through an object's methods
  - (C) Writing all code in a single function
  - (D) None of these
8. The key benefit of early reviews in the software process is:
- (A) Reduced testing time
  - (B) Enhanced project marketing
  - (C) Early detection of defects
  - (D) Improved runtime performance
9. Refinement is most commonly applied during which phase of software development?
- (A) Deployment
  - (B) Maintenance
  - (C) Design
  - (D) Testing
10. Which of the following is a benefit of using CASE tools?
- (A) Increased code complexity
  - (B) Higher cost of development
  - (C) Improved productivity and software quality
  - (D) Slower development process

11. Lower CASE tools are mainly used for:
- (A) Requirement gathering
  - (B) Project planning
  - (C) Code generation, implementation, and testing
  - (D) Feasibility analysis
12. Upper CASE tools are primarily used for:
- (A) Coding and debugging
  - (B) System design and analysis
  - (C) Testing and deployment
  - (D) Writing documentation only
13. Which type of CASE tool is used during the early stages of the software development lifecycle?
- (A) Lower CASE tools
  - (B) Upper CASE tools
  - (C) Middle CASE tools
  - (D) All-purpose tools
14. Which of the following is NOT a component of CASE tools?
- (A) Code generator
  - (B) Debugger
  - (C) Data modeling tool
  - (D) Video creating engine
15. The main purpose of CASE tools is to:
- (A) Write hardware drivers
  - (B) Support software development and maintenance
  - (C) Compile programs faster
  - (D) Replace software developers

16. What does CASE stand for?
- (A) Computer-Aided System Engineering
  - (B) Computer-Aided Software Engineering
  - (C) Centralized Architecture for Software Engineering
  - (D) Code and Script Editor
17. Refinement in software engineering usually involves:
- (A) Ignoring detailed requirements
  - (B) Rewriting the software completely
  - (C) Breaking down high-level design into more detailed components
  - (D) Removing comments from code
18. What is the primary purpose of the review process in software engineering?
- (A) To compile the code
  - (B) To test the hardware
  - (C) To identify and fix errors early in the development cycle
  - (D) To increase project cost
19. Which of the following is NOT a common type of software review?
- (A) Code Review
  - (B) Design Review
  - (C) Walkthrough
  - (D) Simulation Review
20. Why is documentation important for software maintenance?
- (A) To increase file size
  - (B) To reduce execution time
  - (C) To help maintainers understand the system and make changes efficiently
  - (D) To hide implementation logic

21. Perfective maintenance aims to:
- (A) Fix bugs
  - (B) Adapt to new hardware
  - (C) Improve or enhance functionality and performance
  - (D) Archive the software
22. Which of the following is a major challenge in software maintenance?
- (A) Lack of development tools
  - (B) Understanding and modifying someone else's code
  - (C) Fast processors
  - (D) High-speed networks
23. Preventive maintenance is primarily focused on:
- (A) Fixing urgent issues
  - (B) Enhancing software security
  - (C) Making changes to reduce future risks and improve maintainability
  - (D) Improving screen resolution
24. Adaptive maintenance is done when:
- (A) New bugs are found
  - (B) The software environment changes (e.g., OS, hardware, regulations)
  - (C) Software is no longer needed
  - (D) Software needs to be uninstalled
25. What does corrective maintenance involve?
- (A) Adding new features
  - (B) Fixing bugs and errors in the software
  - (C) Improving documentation
  - (D) Rewriting the entire software

26. Which of the following is NOT a type of software maintenance?
- (A) Corrective maintenance
  - (B) Adaptive maintenance
  - (C) Preventive maintenance
  - (D) Directive maintenance
27. What is software maintenance?
- (A) Writing code for the first time
  - (B) Installing new hardware
  - (C) Modifying software after delivery to correct faults or improve performance
  - (D) Testing software before release
28. Which of the following is NOT a level of testing?
- (A) Unit Testing
  - (B) Integration Testing
  - (C) System Testing
  - (D) Execution Testing
29. What is the main objective of the implementation phase?
- (A) To gather user requirements
  - (B) To write user manuals
  - (C) To deploy the software and make it operational
  - (D) To perform alpha testing
30. In software implementation, what is "deployment"?
- (A) Writing test cases
  - (B) Converting code into pseudocode
  - (C) Delivering the software to the user environment
  - (D) Deleting unused code

31. Which testing technique treats the software as a "black box"?
- (A) Unit testing
  - (B) White-box testing
  - (C) Black-box testing
  - (D) Regression testing
32. What does unit testing focus on?
- (A) Testing the complete system
  - (B) Testing the user interface
  - (C) Testing individual components or functions
  - (D) Testing network performance
33. What is the main purpose of software testing?
- (A) To improve hardware performance
  - (B) To increase the software size
  - (C) To rewrite the entire codebase
  - (D) To identifying bugs and errors
34. How should a function ideally be designed?
- (A) To do everything in one block
  - (B) To perform a single, specific task
  - (C) To be reused only once
  - (D) To have multiple return statements in every case
35. Why is commenting your code important?
- (A) It helps the compiler understand the code
  - (B) It makes code run faster
  - (C) It helps other developers understand your logic
  - (D) It reduces file size

36. Which of the following is NOT recommended in good coding style?
- (A) Writing long functions with hundreds of lines
  - (B) Adding inline comments
  - (C) Keeping functions small and focused
  - (D) Using consistent formatting
37. Which of the following is a good practice for naming variables?
- (A) Use single-letter variable names like x, y, z for everything
  - (B) Use meaningful names like total Amount or customer List
  - (C) Use all caps for all variables
  - (D) Use random names to confuse others
38. What is the primary goal of following a good coding style?
- (A) To make code run faster
  - (B) To improve code readability and maintainability
  - (C) To reduce the file size
  - (D) To write fewer comments
39. Which symbol is used to represent a relationship in an ER diagram?
- (A) Oval
  - (B) Diamond
  - (C) Rectangle
  - (D) Triangle
40. In an ER diagram, a rectangle represents:
- (A) Attribute
  - (B) Relationship
  - (C) Entity
  - (D) Primary Key

41. What does ER in ER Diagram stand for?
- (A) Entity Reference
  - (B) Entity Relationship
  - (C) External Resource
  - (D) Extended Record
42. In UML, an Actor is:
- (A) A user or external system that interacts with the software
  - (B) A Java class
  - (C) A component in the architecture
  - (D) A method that starts execution
43. A Use Case Diagram is used to:
- (A) Model the structure of a system
  - (B) Show interactions between system components
  - (C) Represent user interactions with the system
  - (D) Depict database schemas
44. Which of the following is NOT a type of UML diagram?
- (A) Class Diagram
  - (B) E-R Diagram
  - (C) Sequence Diagram
  - (D) Use Case Diagram
45. UML is primarily used for:
- (A) Writing code
  - (B) Creating user interfaces
  - (C) Modeling and designing software systems
  - (D) Database optimization

46. In which step of SDLC actual programming of software code is done?
- (A) Code Development and Documentation
  - (B) Maintenance and Evaluation
  - (C) Design
  - (D) Analysis
47. Which one of the following is not a software process quality?
- (A) Visibility
  - (B) Timeliness
  - (C) Productivity
  - (D) Portability
48. \_\_\_\_\_ is not suitable for accommodating any change?
- (A) RAD Model
  - (B) Waterfall Model
  - (C) Build & Fix Model
  - (D) Prototyping Model
49. Which diagram is primarily used in software design to represent the structure of a system?
- (A) Sequence Diagram
  - (B) Use Case Diagram
  - (C) Class Diagram
  - (D) Activity Diagram
50. Which of the following is used to predict the effort as a function of LOC or FP?
- (A) COCOMO
  - (B) FP-based estimation
  - (C) Both COCOMO and FP-based estimation
  - (D) Process-based estimation

51. Which of the following is not included in the total effort cost?
- (A) Costs of lunch time food
  - (B) Costs of support staff
  - (C) Costs of networking and communications
  - (D) Costs of air conditioning and lighting in the office space
52. Which of the following is an incorrect activity for the configuration management of a software system?
- (A) Change management
  - (B) System management
  - (C) Internship management
  - (D) Version management
53. Which of the following word correctly summarized the importance of software design?
- (A) Quality
  - (B) Complexity
  - (C) Efficiency
  - (D) Accuracy
54. An erroneous system state that results in an unexpected system behavior is acknowledged as?
- (A) System failure
  - (B) Human error or mistake
  - (C) System error
  - (D) System fault
55. What is the primary purpose of using design patterns in software development?
- (A) To increase code length
  - (B) To create new programming languages
  - (C) To solve common design problems
  - (D) To generate UML diagrams

56. Which of the following are parameters involved in computing the total cost of a software development project?
- (A) Hardware and software costs
  - (B) Effort costs
  - (C) Travel and training costs
  - (D) All of the mentioned
57. "Consider a system where, a heat sensor detects an intrusion and alerts the security company." What kind of a requirement the system is providing?
- (A) Functional
  - (B) Non-Functional
  - (C) Known Requirement
  - (D) None of the mentioned
58. Which feature of OOP indicates code reusability?
- (A) Inheritance
  - (B) Polymorphism
  - (C) Encapsulation
  - (D) Abstraction
59. The agile software development model is built based on \_\_\_\_\_
- (A) Linear Development
  - (B) Incremental Development
  - (C) Iterative Development
  - (D) Both Incremental and Iterative Development
60. COCOMO stands for
- (A) Calculated Cost Model
  - (B) Computer Cost Model
  - (C) Constructive Cost Model
  - (D) None of These

61. SDLC stands
- (A) Sequential Data Life Cycle
  - (B) Software Development Life Cycle
  - (C) Single Data Local Class
  - (D) Serial Data Local Category
62. What of the following is an operational component of the system?
- (A) Input device
  - (B) RAM
  - (C) Processor
  - (D) None of the above mentioned
63. What is the major drawback of the Spiral Model?
- (A) Higher amount of risk analysis
  - (B) Doesn't work well for smaller projects
  - (C) Additional functionalities are added later on
  - (D) Strong approval and documentation control
64. What does the study of an existing system refer to?
- (A) Details of DFD
  - (B) Feasibility Study
  - (C) System Analysis
  - (D) System Planning
65. The Prototyping Model is most useful when:
- (A) Requirements are well-defined and stable
  - (B) Requirements are unclear or likely to change
  - (C) The project has zero risk factors
  - (D) A quick final product is required without user feedback

66. Software Debugging is known as \_\_\_\_\_
- (A) Identifying the task to be computerized
  - (B) Creating program code
  - (C) Creating the algorithm
  - (D) Finding and correcting errors in the program code
67. Which of the following statements best describes the relationship between coupling and cohesion?
- (A) High coupling and high cohesion are both desirable attributes in software design.
  - (B) High coupling and low cohesion are both desirable attributes in software design.
  - (C) Low coupling and high cohesion are both desirable attributes in software design.
  - (D) Low coupling and low cohesion are both desirable attributes in software design.
68. Which of the following is not considered a good characteristic of a Software Requirement Specification (SRS)?
- (A) Correctness
  - (B) Ambiguity
  - (C) Completeness
  - (D) Consistency
69. What type of cohesion occurs when elements of a module are grouped because they operate on the same data?
- (A) Functional cohesion
  - (B) Communicational cohesion
  - (C) Temporal cohesion
  - (D) Sequential cohesion
70. A module that performs a series of tasks that are related by time is said to have:
- (A) Functional cohesion
  - (B) Logical cohesion
  - (C) Temporal cohesion
  - (D) Coincidental cohesion

71. Information hiding is a key principle of which programming concept?
- (A) Functional programming
  - (B) Procedural programming
  - (C) Object-oriented programming
  - (D) Logic programming
72. Which is type of application software?
- (A) MS Word
  - (B) Linux
  - (C) Windows
  - (D) None of the above
73. Which is/are property of Object Oriented Programming?
- (A) Class
  - (B) Object
  - (C) Inheritance
  - (D) All of the above
74. Which of the following is the highest form of cohesion?
- (A) Temporal cohesion
  - (B) Procedural cohesion
  - (C) Functional cohesion
  - (D) Logical cohesion
75. What does cohesion refer to in software engineering?
- (A) The ability of a module to perform multiple unrelated tasks
  - (B) The degree to which elements of a module belong together
  - (C) The number of connections between modules
  - (D) The extent of data hiding in a module

76. Which is the best type of coupling?
- (A) Control coupling
  - (B) Data coupling
  - (C) Content coupling
  - (D) Stamp coupling
77. Which of the following is/are the type of Coupling?
- (A) Data
  - (B) Common
  - (C) Content
  - (D) All of the above
78. DFD stands as
- (A) Data Flow Diagram
  - (B) Data False Dimension
  - (C) Dynamic Flow Data
  - (D) None of these
79. Which of the following is a key advantage of the Spiral Model?
- (A) Low cost for small projects
  - (B) High risk due to lack. of planning
  - (C) Strong risk management
  - (D) Strict sequential process
80. Which of the following is true about the Waterfall Model?
- (A) It is best suited for projects with unclear requirements
  - (B) It starts with testing phase
  - (C) It follows a linear sequential approach
  - (D) It allows testing to start before code

81. Which of the following best describes the Waterfall Model?
- (A) Non Sequential
  - (B) Sequential and structured
  - (C) Agile and adaptive
  - (D) Rapid and incremental
82. Which of the following is not a characteristic of good software?
- (A) Usability
  - (B) Efficiency
  - (C) Reliability
  - (D) Expensiveness
83. What does RAD stand for in software engineering?
- (A) Rapid Application Development
  - (B) Random Application Development
  - (C) Removal Application Design.
  - (D) None of These
84. Which is part of information gathering techniques?
- (A) Interviews
  - (B) Focus groups
  - (C) Surveys
  - (D) All of the above
85. Which is/are types of requirements?
- (A) Functional Requirement
  - (B) Non- Functional Requirement
  - (C) Domain Requirement
  - (D) All of the above

86. Which of the following is a primary goal of software design?
- (A) Reducing compilation time
  - (B) Enhancing code readability and maintainability
  - (C) Minimizing electricity usage
  - (D) Reducing screen resolution
87. Which is Type of Problem Partitioning?
- (A) Horizontal
  - (B) Vertical
  - (C) Both (A) & (B)
  - (D) None of these
88. What does the term "modularity" in software design refer to?
- (A) Running the software in different modules
  - (B) Dividing software into small, independent parts
  - (C) Adding more modules to increase size
  - (D) Writing monolithic code blocks
89. Which of the following is NOT a commonly used architectural style?
- (A) Client-Server
  - (B) Layered
  - (C) Monolithic
  - (D) Quadratic
90. Which statement about validation and verification is correct?
- (A) Validation can be fully automated, but verification cannot.
  - (B) Verification ensures that requirements are met, while validation ensures correctness of the implementation.
  - (C) Validation is performed only after the software is completely developed.
  - (D) Verification is dynamic, whereas validation is static.

91. The step-by-step instructions that solve a problem are called \_\_\_\_\_.  
(A) An algorithm  
(B) A list  
(C) A plan  
(D) sequential structure
92. Which document would you choose to find the user system requirements?  
(A) SDD  
(B) SRS  
(C) DDD  
(D) SRD
93. Which are not characteristics of SRS document?  
(A) Complete  
(B) Consistent  
(C) Coding  
(D) Ranked
94. Which of the following is NOT a software development lifecycle model?  
(A) Waterfall Model  
(B) Spiral Model  
(C) Datatype Model  
(D) Prototype Model
95. What is a Functional Requirement?  
(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

96. In which phase of the SDLC is the feasibility study conducted?
- (A) Planning
  - (B) Design
  - (C) Coding
  - (D) Maintenance
97. What are main features of software engineering?
- (A) Software must be costly
  - (B) To develop software that is maintainable and reliable
  - (C) To develop software in few seconds
  - (D) To resolve error handling
98. Software is defined as \_\_\_\_\_
- (A) set of programs, documentation & configuration of data
  - (B) set of testing the code
  - (C) documentation and configuration of data
  - (D) None of the mentioned
99. What is the main purpose of the 'Risk Analysis' phase in the Spiral Model?
- (A) To identify and mitigate potential risks
  - (B) To design the software architecture
  - (C) To write and execute code
  - (D) None of these
100. The full form of UML is :
- (A) Uniform Machine Language
  - (B) Unity Machine Language
  - (C) Unified Modelling Language
  - (D) Universal Model Location

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4. Four alternative answers are mentioned for each question as – A, B, C & D in the question booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

**Example :**

**Question :**

- Q. 1 (A) ☒ (B) ☐ (C) ☐ (D) ☐  
 Q. 2 (A) ☐ (B) ☒ (C) ☐ (D) ☐  
 Q. 3 (A) ☐ (B) ☒ (C) ☐ (D) ☐

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer Sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything on the OMR Answer Sheet, all the Instructions given in it should be read carefully.
8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
9. There will be no negative marking.
10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.
12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

**Impt.** On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question booklet, then after showing it to the invigilator, get another question booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर— A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से एक सही उत्तर छोटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

**उदाहरण :**

**प्रश्न :**

- प्रश्न 1 (A) ☒ (B) ☐ (C) ☐ (D) ☐  
 प्रश्न 2 (A) ☐ (B) ☒ (C) ☐ (D) ☐  
 प्रश्न 3 (A) ☐ (B) ☒ (C) ☐ (D) ☐

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उत्तर निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
9. निगेटिव मार्किंग नहीं है।
10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

**महत्वपूर्ण :** प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।