

Seat No.	
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**PD-27**

**Total No. of Pages : 12**

**Ph.D. Entrance Examination, 2025**  
**Sub: Computer Application**  
**Sub. Code : 58844**

**Day and Date : Wednesday, 10-09-2025**

**Total Marks : 100**

**Time : 1.00 p.m. to 3.00 p.m.**

**Instructions:**

1. All questions are compulsory.
2. Each question carries 2 marks.
3. Answers should be marked in the given OMR answer sheet by darkening the appropriate option.
4. Use black ball point pen only for marking the circle. Do not make any stray mark on the OMR Answer Sheet.
5. Follow the instructions given on OMR Sheet.
6. Rough work shall be done on the sheet provided at the end of question paper.
7. Only non programmable calculators are allowed.

**Choose correct alternative for following questions from given alternatives.**

1. Research hypothesis is designed.....
  - A. To summarize the research findings
  - B. To explain the research methodology
  - C. To predict the outcome of the research
  - D. To describe the research participant
2. .... is the role of a virtual machine in cloud computing research.
  - A. To physically represent a server in the cloud
  - B. To simulate network configurations
  - C. To run applications independently of the underlying hardware
  - D. To provide physical security for cloud servers
3. ....research type is best suited for answering "how" and "why" questions.
  - A. Descriptive research
  - B. Causal research
  - C. Exploratory research
  - D. Correlational research

4. The primary aim of exploratory research is.....
  - A. To test hypotheses
  - B. To describe phenomena
  - C. To establish cause-and-effect relationships
  - D. To generate insights and ideas
5. The purpose of formulating a research problem in operational terms is.....
  - A. To narrow down the scope of the problem
  - B. To make the problem more complex
  - C. To make the problem less specific
  - D. To discriminate relevant data from irrelevant ones
6. The research process is:
  - A. A linear process with no interdependencies
  - B. A system of interrelated activities
  - C. A static process with fixed stages
  - D. A process that can be skipped or altered without consequences
7. .... is subset of the population selected for a study.
  - A. Sample
  - B. Variable
  - C. Statistics
  - D. Independent variable
8. .... technique is commonly used in qualitative research to identify additional participants through recommendations from initial participants.
  - A. Stratified sampling
  - B. Snowball sampling
  - C. Random sampling
  - D. Convenience sampling

9. In a literature review, what is the significance of identifying key themes or concepts across different studies?
- A. To present a theoretical framework
  - B. To highlight contradictions in the research
  - C. To organize and categorize the existing literature
  - D. To generate new research questions
10. What is the purpose of a pilot study in the context of data collection?
- A. To select the research participants
  - B. To refine data collection methods and instruments
  - C. To analyze collected data
  - D. To establish hypotheses
11. ....is data collection method involves observing and recording behavior in its natural setting without intervention.
- A. Experiments
  - B. Surveys
  - C. Case studies
  - D. Observations
12. .... research design is suitable for studying the long-term effects of a new software implementation in an organization.
- A. Cross-sectional design
  - B. Experimental design
  - C. Longitudinal design
  - D. Case study design
13. .... research design is often used to explore the attitudes, opinions, and experiences of users in computer applications.
- A. Experimental design
  - B. Survey design
  - C. Case study design
  - D. Longitudinal design

14. .... is a characteristic of experimental research design in computer applications.
- A. Structuring and planning the research process
  - B. Developing software applications
  - C. Selecting appropriate data analysis methods
  - D. Conducting usability testing
15. .... is commonly used tool for managing and analyzing structured data in computer applications research.
- A. Tensor Flow
  - B. Tableau
  - C. MySQL
  - D. Git
16. What does the term "statistical significance" indicate in data analysis?
- A. The practical importance of findings
  - B. The likelihood of Type II errors
  - C. The probability of obtaining results by chance
  - D. The size of the sample
17. What is the purpose of a chi-square test in data analysis?
- A. Comparing means between two groups
  - B. Testing the independence of categorical variables
  - C. Examining relationships between two continuous variables
  - D. Assessing the normality of data distribution
18. What is Type I error in hypothesis testing?
- A. Rejecting a true null hypothesis
  - B. Failing to reject a false null hypothesis
  - C. Accepting the alternative hypothesis
  - D. The probability of making an error

19. .... technique is commonly used for handling missing or incomplete data in Big Data research.
- A. Data normalization
  - B. Data aggregation
  - C. Data encryption
  - D. Data imputation
20. In the context of Big Data research, the term "data lakes" refer to:
- A. A centralized data warehouse
  - B. Real-time data processing
  - C. A collection of unstructured and structured data
  - D. Data compression techniques
21. Key characteristic of peer-reviewed research articles is.....
- A. They are typically short and concise.
  - B. They undergo evaluation by experts in the field before publication
  - C. They are always freely accessible to the public
  - D. They focus primarily on personal opinions
22. In the context of a research report, what is the significance of the "Methods" section?
- A. Presenting the author's opinions
  - B. Providing an analysis of results
  - C. Describing the study's design and procedures
  - D. Offering recommendations for future research
23. What is the primary focus of network simulation tools in IT research?
- A. Developing web applications
  - B. Simulating and modeling network scenarios
  - C. Analyzing code quality
  - D. Testing hardware components

24. .... is often used to investigate cause-and-effect relationships in real-world settings.
- A. Laboratory research
  - B. Exploratory research
  - C. Applied research
  - D. Descriptive research
25. ....is the purpose of a pilot study in research design.
- A. To manipulate variables
  - B. To collect final research data
  - C. To test the feasibility of the research plan
  - D. To analyze statistical relationships
26. What is the key characteristic of a dictionary in Python?
- A. Ordered
  - B. Unordered
  - C. Indexed
  - D. Sequential
27. How can you concatenate two strings in PHP?
- A. `strcat()`
  - B. `concat()`
  - C. `.`
  - D. `+`
28. From following which is not a linear data structure?
- A. Array
  - B. Linked List
  - C. Stack
  - D. Tree
29. .... is the role of a hash function in hash tables.
- A. Sorting elements
  - B. Generating random numbers
  - C. Creating unique keys
  - D. Distributing elements evenly
30. How do you check if an element is present in a list in Python?
- A. `element in my list`
  - B. `my list.contains(element)`
  - C. `my list.exists(element)`
  - D. `find(element, my list)`

31. Which PIP superglobal variable is used to access file information in a file upload?
- A. \$ GET
  - B. \$ POST
  - C. \$ FILE
  - D. \$ FILES
32. What is the primary use case for HBase in the Hadoop ecosystem?
- A. Real-time data processing
  - B. Batch processing of large datasets
  - C. Graph processing
  - D. Storage and retrieval of large-scale, sparse data
33. What is the main characteristic of NoSQL. databases?
- A. Strict schema design
  - B. Relational data model
  - C. Horizontal scalability
  - D. ACID transactions
34. How can you handle missing values in a Pandas DataFrame df by filling them with the mean value of each column?
- A. df.fillna(mean=df.mean())
  - B. df.fillna(df.mean())
  - C. df.fillna(value=df.mean())
  - D. dfdf.fillna(df.mean())
35. In Pandas, if you want to perform group-wise operations on a DataFrame df based on a column 'Category', which function should you use?
- A. df.group by('Category').apply(func)
  - B. df.groupby('Category').transform(func)
  - C. df.group('Category').agg(func)
  - D. df.groupby('Category').agg(func)

36. In a single-layer feed forward neural network, what is the role of the output layer?
- A. Receive input signals
  - B. Make predictions or classifications
  - C. Process hidden layer activations
  - D. Adjust weights during training
37. What operation is performed when combining two fuzzy sets using the "min" operator?
- A. Union
  - B. Intersection
  - C. Complement
  - D. Composition
38. Which of the following is used to execute SQL queries in JDBC?
- A. Statement
  - B. ResultSet
  - C. Connection
  - D. Prepared Statement
39. What is the purpose of JSP in Java web development?
- A. To create dynamic web pages using Java code embedded in HTML
  - B. To handle database connections in Java applications
  - C. To design graphical user interfaces in Java
  - D. To create standalone Java applications
40. What is the purpose of the address bus in a computer system?
- A. Transferring data between components
  - B. Carrying memory addresses
  - C. Performing arithmetic operations
  - D. Managing input devices



41. In the context of a relational database, the normalization is for .....
- A. Adding redundancy to improve performance.
  - B. Organizing data to minimize redundancy and dependency.
  - C. Encrypting sensitive information in the database.
  - D. Increasing the size of the database to accommodate more records.
42. The need of DNS in networking is
- A. To convert domain names to IP addresses
  - B. To secure data transmission
  - C. To regulate network traffic
  - D. To establish a direct connection between devices
43. ....technique involves examining the internal logic of a system's code without executing it.
- A. Black-box testing
  - B. Gray-box testing
  - C. White-box testing
  - D. Acceptance testing
44. .... project management tool helps in identifying the dependencies between tasks in a project.
- A. Gantt chart
  - B. Work Breakdown Structure (WBS)
  - C. PERT chart
  - D. Critical Path Method (CPM)
45. What is the primary objective of a honeypot in cybersecurity?
- A. To attract and detect malicious activity
  - B. To store sensitive information securely
  - C. To block unauthorized access
  - D. To encrypt network traffic

46. ....encryption algorithm is commonly used for securing email communication.
  - A. RSA
  - B. MDS
  - C. PGP (Pretty Good Privacy)
  - D. AES
47. What does the term "edge computing" mean in the context of IoT?
  - A. Processing data on central servers
  - B. Computing data on the IoT device itself
  - C. Transferring data to the cloud for processing
  - D. Encrypting data during transmission
48. .... is the purpose of the device drivers in an operating system.
  - A. Managing user interfaces
  - B. Translating high-level programming languages
  - C. Allocating memory to processes
  - D. Controlling and communicating with hardware devices
49. What is the term for the practice of tricking individuals into revealing sensitive information, such as passwords or credit card numbers?
  - A. Encryption
  - B. Phishing
  - C. Firewalling
  - D. Tokenization
50. In the context of data analytics, the acronym "CRISP-DM" stand for:
  - A. Cross-Reference for Iterative Statistical Processes in Data Mining
  - B. Comprehensive Review of Integrated Statistical Processes for Data Management
  - C. Cross-Industry Standard Process for Data Mining
  - D. Collaborative Research in Statistical Processes for Data Modeling



**- Rough Work -**

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