

AL HUDA SCIENCE ACADEMY

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Guess Paper of Computer Class 11th

اللہ سب کو سچ کہنے کی ہمت عطا فرمائیں۔ آمین

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11th Class Computer Important Short Questions

Questions NO. 2 (Ch # 1, 2, 8)

- Q.No. 1:** Define software development.
- Q.No. 2:** Differentiate between functional and non-functional requirements.
- Q.No. 3:** Explain why the testing phase is important in the Software Development Life Cycle (SDLC), and provide two reasons for its significance.
- Q.No. 4:** In which fields can Systems be applied?
- Q.No. 5:** What is the main goal of the Software Development Life Cycle (SDLC)?
- Q.No. 6:** What is a framework in software development?
- Q.No. 7:** What is the purpose of the requirement gathering phase in software development?
- Q.No. 8:** Mention any two methods used to collect requirements.
- Q.No. 9:** What do non-functional requirements define in a software system?
- Q.No. 10:** Give one example of a non-functional requirement related to system performance.
- Q.No. 11:** How are non-functional requirements different from functional requirements.
- Q.No. 12:** What are functional requirements in a software system?
- Q.No. 13:** What is the main purpose of the design phase in software development?
- Q.No. 14:** Why are diagrams and models created during the design phase?
- Q.No. 15:** What does software architecture planning involve?
- Q.No. 16:** What is the main goal of the coding or development phase?
- Q.No. 17:** What do programmers use to guide their work during the coding phase?
- Q.No. 18:** What is code in the context of software development?
- Q.No. 19:** What is the main purpose of the maintenance phase?
- Q.No. 20:** Why might software need to be updated after deployment?
- Q.No. 21:** How does maintenance help with changing user needs?
- Q.No. 22:** Define SDLC.
- Q.No. 23:** Illustrate the concept of continuous integration in Agile Methodology and discuss its importance in software development.
- Q.No. 24:** What are software development methodologies used for?
- Q.No. 25:** How do software process models help in managing software projects?
- Q.No. 26:** What is one benefit of using a structured development method?
- Q.No. 27:** What is the main characteristic of the Waterfall Model?
- Q.No. 28:** Name any two phases of the Waterfall Model.
- Q.No. 29:** What are sprints in Agile methodology?
- Q.No. 30:** Name one advantage of using Agile for software development.
- Q.No. 31:** Why can Agile be less predictable than other models?
- Q.No. 32:** Evaluate the main steps involved in risk assessment and management, and assess their importance in a software project.
- Q.No. 33:** What is the purpose of setting project timelines in software development?
- Q.No. 34:** Name two key factors that affect the cost estimation of a software project.
- Q.No. 35:** What does risk assessment in project management involve?
- Q.No. 36:** Describe the Factory Pattern and explain how it differs from directly creating objects, with an example.
- Q.No. 37:** What is the purpose of using design patterns in software development?

- Q.No. 38:** What is the main benefit of using the Factory Pattern?
- Q.No. 39:** How does the Observer Pattern work in a software system?
- Q.No. 40:** What is the advantage of using the Strategy Pattern for algorithm selection?
- Q.No. 41:** How do design patterns reduce code complexity?
- Q.No. 42:** What is the main advantage of using design patterns in communication among developers?
- Q.No. 43:** How do design patterns contribute to code reusability?
- Q.No. 44:** How does the Singleton Pattern ensure that only one instance of an object is created?
- Q.No. 45:** What is debugging in software development?
- Q.No. 46:** Name two tools commonly used for debugging.
- Q.No. 47:** How can code reviews help in debugging?
- Q.No. 48:** What is the primary goal of Unit Testing?
- Q.No. 49:** How does Integration Testing differ from Unit Testing?
- Q.No. 50:** What is the purpose of Acceptance Testing?
- Q.No. 51:** What is the purpose of a code editor in software development?
- Q.No. 52:** How do interpreters differ from compilers?
- Q.No. 53:** What is an Integrated Development Environment (IDE)?
- Q.No. 54:** Name two commonly used IDEs and their primary programming language.
- Q.No. 55:** What is the difference between online and offline computing platforms?
- Q.No. 56:** Name two examples of online computing platforms.
- Q.No. 57:** What is the purpose of source code repositories in software development?
- Q.No. 58:** What role do debuggers play in the software development process?
- Q.No. 59:** How do IDEs streamline the software development process?
- Q.No. 60:** What are the main fields where Python is commonly used?
- Q.No. 61:** What are the basic steps involved in writing a program?
- Q.No. 62:** What is a development environment in Python programming?
- Q.No. 63:** Explain the purpose of using comments in Python code.
- Q.No. 64:** What is the purpose of the `print()` function in Python?
- Q.No. 65:** How do you write a single-line comment in Python?
- Q.No. 66:** What is the use of adding Python to the PATH during installation?
- Q.No. 67:** What is a variable in Python?
- Q.No. 68:** What are the rules for naming variables in Python?
- Q.No. 69:** How do you handle integer and float inputs in Python?
- Q.No. 70:** Define operator precedence and give an example of an expression where operator precedence affects the result.
- Q.No. 71:** What is the purpose of the arithmetic operator `//` in Python?
- Q.No. 72:** What does the `**` operator do in Python?
- Q.No. 73:** How is the modulus operator `%` used in Python?
- Q.No. 74:** What do comparison operators in Python do?
- Q.No. 75:** What does the `==` operator do in Python?
- Q.No. 76:** What is the purpose of the `!=` operator in Python?
- Q.No. 77:** What is the purpose of assignment operators in Python?
- Q.No. 78:** What does the `+=` operator do in Python?
- Q.No. 79:** How does the `**=` operator work in Python?
- Q.No. 80:** What is the purpose of logical operators in Python?

- Q.No. 81:** Which logical operator is used to combine conditions where both must be True?
- Q.No. 82:** What does the not operator do in Python?
- Q.No. 83:** What is an expression in Python?
- Q.No. 84:** How can parentheses be used in expressions?
- Q.No. 85:** What is operator precedence in Python?
- Q.No. 86:** How does the short-hand if-else statement differ from the regular if-else statement?
- Q.No. 87:** What is the purpose of the if statement in Python?
- Q.No. 88:** How does the if statement work in Python?
- Q.No. 89:** Can an if statement be used alone without any other control structures?
- Q.No. 90:** What does the if-else statement do in Python?
- Q.No. 91:** What is the syntax of the if-else statement in Python?
- Q.No. 92:** How is the short-hand if-else statement different from the regular if-else statement in Python?
- Q.No. 93:** What is the purpose of the elif statement in the if-elif-else structure?
- Q.No. 94:** How does the if-elif-else statement differ from the if-else statement?
- Q.No. 95:** What happens if none of the conditions in an if-elif-else statement are true?
- Q.No. 96:** What is the purpose of a while loop in Python?
- Q.No. 97:** When does a while loop stop executing?
- Q.No. 98:** What will happen if the condition in a while loop is always true?
- Q.No. 99:** What is the purpose of a for loop in Python?
- Q.No. 100:** Can a for loop be used with a string?

Questions NO. 3 (Ch # 3, 6, 7)

- Q.No. 1:** Differentiate between well-defined and ill-defined problems within the realm of computational problem-solving.
- Q.No. 2:** What is a computational problem?
- Q.No. 3:** What are the three main components of a computational problem?
- Q.No. 4:** What is the role of the process in solving a computational problem?
- Q.No. 5:** What type of computational problem has a "yes" or "no" answer?
- Q.No. 6:** What are the three main elements needed to solve a computational problem?
- Q.No. 7:** Outline the main steps involved in the Generate-and-Test method.
- Q.No. 8:** What is an algorithm?
- Q.No. 9:** When is the Generate and Test algorithm useful?
- Q.No. 10:** What are the two main steps in a Generate and Test algorithm?
- Q.No. 11:** Compare tractable and intractable problems in the context of computational complexity.
- Q.No. 12:** What is a solvable problem in computer science?
- Q.No. 13:** Give an example of an unsolvable problem.
- Q.No. 14:** Why is the GCD problem considered solvable?
- Q.No. 15:** Identify the key factors used to evaluate the performance of an algorithm.
- Q.No. 16:** What does time complexity measure?
- Q.No. 17:** What is Big O notation used for?
- Q.No. 18:** What is an example of a logarithmic time algorithm?
- Q.No. 19:** Summarize the key idea behind Greedy Algorithms.
- Q.No. 20:** Discuss the advantages of using Dynamic Programming.

- Q.No. 21:** Explain the importance of breaking down a problem into smaller components in algorithmic thinking.
- Q.No. 22:** What does the Divide and Conquer technique do?
- Q.No. 23:** What are the three steps in Divide and Conquer?
- Q.No. 24:** Name an algorithm that uses Divide and Conquer.
- Q.No. 25:** What is the main idea behind Divide and Conquer?
- Q.No. 26:** In which type of problems is Divide and Conquer most effective?
- Q.No. 27:** Can you name a sorting algorithm that uses Divide and Conquer?
- Q.No. 28:** What is Dynamic Programming used for?
- Q.No. 29:** When is Dynamic Programming most effective?
- Q.No. 30:** How does Dynamic Programming improve efficiency?
- Q.No. 31:** What is Backtracking in algorithm design?
- Q.No. 32:** When do we use Backtracking?
- Q.No. 33:** What happens if a path fails in Backtracking?
- Q.No. 34:** Compare the advantages of Breadth-First Search (BFS) with Depth-First Search (DFS) in graph traversal.
- Q.No. 35:** What is the purpose of sorting algorithms?
- Q.No. 36:** What does Bubble Sort do?
- Q.No. 37:** What is the time complexity of Bubble Sort?
- Q.No. 38:** How does a Binary Search algorithm work?
- Q.No. 39:** What is the time complexity of Binary Search?
- Q.No. 40:** How does Linear Search work?
- Q.No. 41:** What does BFS (Breadth-First Search) explore in a graph?
- Q.No. 42:** How does BFS keep track that need to be explored?
- Q.No. 43:** What is the main application of BFS in real-world scenarios?
- Q.No. 44:** What is the main idea behind the selection sort algorithm?
- Q.No. 45:** How does the selection sort process move forward?
- Q.No. 46:** What is the time complexity of selection sort?
- Q.No. 47:** What is Artificial Intelligence (AI)?
- Q.No. 48:** Give one example of cloud computing.
- Q.No. 49:** What does IoT stand for, and what does it do?
- Q.No. 50:** Differentiate between Elasticity and On-Demand access in cloud computing.
- Q.No. 51:** What is cloud computing?
- Q.No. 52:** What does virtualization allow?
- Q.No. 53:** How does scalability help in cloud computing?
- Q.No. 54:** What does IaaS provide to users?
- Q.No. 55:** What is the main benefit of using PaaS for developers?
- Q.No. 56:** What is SaaS and give one example?
- Q.No. 57:** What is a public cloud?
- Q.No. 58:** Why might a company choose a private cloud?
- Q.No. 59:** How does a hybrid cloud work?
- Q.No. 60:** What is cloud storage used for?
- Q.No. 61:** Name two cloud platforms used for web hosting.
- Q.No. 62:** Why is cloud computing useful for AI and machine learning?

- Q.No. 63:** Why is data security important in cloud computing?
- Q.No. 64:** What is scalability in cloud computing?
- Q.No. 65:** What is compliance in the context of cloud computing?
- Q.No. 66:** What is edge computing and how does it benefit data processing?
- Q.No. 67:** Describe the concept of serverless architectures.
- Q.No. 68:** What advantages do serverless architectures offer to developers?
- Q.No. 69:** How does edge computing improve the efficiency of autonomous vehicles?
- Q.No. 70:** What is edge computing, and how does it benefit cloud computing?
- Q.No. 71:** How does serverless computing reduce operational complexity for developers?
- Q.No. 72:** Why is it important for users to understand Terms of Use?
- Q.No. 73:** What are Terms of Use?
- Q.No. 74:** Why should users agree to Terms of Use?
- Q.No. 75:** Can you give an example of Terms of Use in real life?
- Q.No. 76:** Why are Terms of Use important for users?
- Q.No. 77:** How do Terms of Use help prevent misunderstandings?
- Q.No. 78:** What legal benefit do Terms of Use offer to businesses?
- Q.No. 79:** What is the purpose of a "User Obligation" clause in Terms of Use?
- Q.No. 80:** Why are privacy clauses important in Terms of Use?

Questions NO. 4 (Ch # 4, 5, 9)

- Q.No. 1:** Explain how the 'insert()' function works in python lists. Provide an example.
- Q.No. 2:** Explain the potential issues which could arise when two variables reference the same list in a program? Provide an example.
- Q.No. 3:** Define a stack and explain the Last-In, First-Out (LIFO) principle.
- Q.No. 4:** Differentiate between the Enqueue and Dequeue operations of queue.
- Q.No. 5:** Name two basic operations performed on stack.
- Q.No. 6:** What is difference between enqueue() and dequeue().
- Q.No. 7:** What is a list in Python?
- Q.No. 8:** How is a list created in Python?
- Q.No. 9:** What is an element in a list?
- Q.No. 10:** What does it mean that Python lists have dynamic size?
- Q.No. 11:** How can you access elements in a list?
- Q.No. 12:** Which function is used to insert an item at a specific position in a list?
- Q.No. 13:** What are two common applications of lists in programming?
- Q.No. 14:** What does LIFO stand for in the context of stacks?
- Q.No. 15:** Which operations are used in a stack?
- Q.No. 16:** What does FIFO stand for in queues?
- Q.No. 17:** Which two main operations are performed on a queue?
- Q.No. 18:** How does a queue work in real life?
- Q.No. 19:** What is a root node in a tree structure?
- Q.No. 20:** What is a leaf in a tree structure?
- Q.No. 21:** How is a tree different from a list?
- Q.No. 22:** What is a graph in data structures?
- Q.No. 23:** How is a graph different from a tree?

- Q.No. 24:** Give a real-life example of a graph.
- Q.No. 25:** What is a vertex in a graph?
- Q.No. 26:** What is the degree of a vertex?
- Q.No. 27:** What is a weighted graph?
- Q.No. 28:** What is the mean of a dataset, and how is it calculated?
- Q.No. 29:** What is the mode of a dataset, and how can it be determined?
- Q.No. 30:** How do you find the median of a dataset with an even number of values?
- Q.No. 31:** What does a high variance indicate about a dataset?
- Q.No. 32:** What is the mean of the dataset: 50, 52, 55, 57, 60?
- Q.No. 33:** Which class had more scattered scores, Class A(50,52,55,57,60) or Class B(30,45,55,75,90)?
- Q.No. 34:** What is standard deviation?
- Q.No. 35:** What does a high standard deviation indicate?
- Q.No. 36:** What is probability?
- Q.No. 37:** What is the probability of getting heads when flipping a fair coin?
- Q.No. 38:** What is the purpose of data collection in research?
- Q.No. 39:** What is the main difference between surveys and observations as data collection methods?
- Q.No. 40:** How do experiments help in data collection?
- Q.No. 41:** What is data preparation?
- Q.No. 42:** Why is data cleaning important?
- Q.No. 43:** What are common problems fixed during data cleaning?
- Q.No. 44:** What is meant by handling missing data?
- Q.No. 45:** What is imputation?
- Q.No. 46:** What does flagging a missing value mean?
- Q.No. 47:** List two types of data visualizations and describe when you would use each.
- Q.No. 48:** What is data visualization?
- Q.No. 49:** When would you use a bar chart?
- Q.No. 50:** How does visualizing data help in understanding descriptive statistics?
- Q.No. 51:** Which two common tools can be used to create data visualizations easily?
- Q.No. 52:** What is the first step when creating a chart in Excel or Google Sheets?
- Q.No. 53:** Why is it important to add labels to charts?
- Q.No. 54:** Define entrepreneurship in your own words.
- Q.No. 55:** What is the main focus of Design Thinking?
- Q.No. 56:** What is the first step in Design Thinking?
- Q.No. 57:** Why is it important to create a prototype?
- Q.No. 58:** How does the "Ideate" step help in the Design Thinking process?
- Q.No. 59:** What is a business solution?
- Q.No. 60:** How does Design Thinking help businesses?
- Q.No. 61:** Give an example of a business solution for a grocery store.
- Q.No. 62:** List the key steps involved in creating a business plan.
- Q.No. 63:** What is a business plan?
- Q.No. 64:** Why is a market analysis important in a business plan?
- Q.No. 65:** What is the purpose of the financial plan in a business plan?
- Q.No. 66:** What is the main benefit of using business plan software?
- Q.No. 67:** How do business plan tools like PlanGuru and Enloop help with financial planning?

- Q.No. 68:** What type of business is PlanGuru or Enloop software useful for?
- Q.No. 69:** What is the main benefit of using collaborative tools like Google Drive or Dropbox Paper?
- Q.No. 70:** How can team collaboration improve the business planning process?
- Q.No. 71:** What kind of work can you do simultaneously using collaborative tools in a business plan?
- Q.No. 72:** Why is market research important for a new business?
- Q.No. 73:** Explain the importance of a business pitch.
- Q.No. 74:** What is the main purpose of collecting market insights?
- Q.No. 75:** What are the two main types of market research techniques?
- Q.No. 76:** How can market research help with product development?
- Q.No. 77:** What is qualitative research?
- Q.No. 78:** What is quantitative research?
- Q.No. 79:** Give one example of qualitative research.
- Q.No. 80:** Give one example of quantitative research.
- Q.No. 81:** Why is market research important for a business?
- Q.No. 82:** What is a customer survey?
- Q.No. 83:** How can a business use customer surveys?
- Q.No. 84:** What is a focus group?
- Q.No. 85:** How is a focus group helpful in business planning?
- Q.No. 86:** Give an example of using a focus group in a bakery business.
- Q.No. 87:** What does analyzing market data mean?
- Q.No. 88:** What is a market trend?
- Q.No. 89:** What is market segmentation?
- Q.No. 90:** How does competitor analysis help a business?
- Q.No. 91:** What is predictive analysis?
- Q.No. 92:** Give one reason why analyzing data is important.
- Q.No. 93:** Why do businesses study competitors?
- Q.No. 94:** What is predictive analysis used for?
- Q.No. 95:** What is the main benefit of making data-driven decisions?
- Q.No. 96:** Give an example of data-driven decision-making.
- Q.No. 97:** What is a business pitch?
- Q.No. 98:** What is the first step of pitching a business idea?
- Q.No. 99:** Why is it important to know your audience in a pitch?
- Q.No. 100:** What should you be ready for after giving a pitch?

11th Class Computer Important Long Questions

Question NO. 5

- Q.No. 1:** Write a Python program using a while loop that prints all the odd numbers between 1 and 100. Also, count and print the total number of odd numbers.
- Q.No. 2:** Translate the following Mathematical Expressions to Python Syntax: (a) Math: $15 \times (3+2)/6 - 2 \times 3$ (b) Math: $7 + 2^2$
- Q.No. 3:** Discuss the differences between time complexity and space complexity. How do they impact the choice of an algorithm for a specific problem?
- Q.No. 4:** What is graph? Explain differences between directed and undirected graphs.

Q.No. 5: Explain data collection methods.

Q.No. 6: Explain the common clauses found in terms of use and describe how they protect both the service provider and the user.

Q.No. 7: Explain the operations on stack with real-life example and Python code.

Q.No. 8: What is Binary Search, how does its process work, what is its time complexity, and how is it more efficient compared to other search methods?

Q.No. 9: Write two differences between Linear Search and Binary Search.

Q.No. 10: Define Bubble Sort. Explain its working with an example.

Question NO. 6

Q.No. 11: Write two difference between Bubble Sort and Selection Sort.

Q.No. 12: Write a Python program that takes a number as input and checks whether it is positive, negative, or zero using an if-elif-else statement.

Q.No. 13: What is Time Complexity, how does Big O Notation describe it, and what do $O(1)$, $O(n)$, $O(n^2)$, and $O(\log n)$ mean in real-world examples?

Q.No. 14: Write a simple program to implement a queue (insertion and deletion).

Q.No. 15: How does a tree data structure organize information, and why is it better than a list for representing hierarchical relationships like those in a family tree?

Q.No. 16: Differentiate between a Tree and a Graph.

Q.No. 17: Differentiate between Tractable Problems and Intractable Problems.

Q.No. 18: Write two differences between Time Complexity and Space Complexity of an algorithm.

Q.No. 19: Differentiate Solvable and Unsolvable Problems.

Q.No. 20: Differentiate between Decision Problems and Search Problems.

Question NO. 7

Q.No. 21: What are operators? List different types of operators in Python? Give examples.

Q.No. 22: What are logical operators in Python? Explain with examples.

Q.No. 23: What is operator precedence in Python? Explain with examples.

Q.No. 24: How does the if-elif-else statement work in Python for decision making with multiple condition?

Q.No. 25: What are 2 key differences between if-else statement and short hand if-else?

Q.No. 26: What is the range() function in Python, how is it used in for loops, and what are its different forms with example?

Q.No. 27: What is different between while and for loop in Python.

Q.No. 28: Explain how to define and invoke a function in Python with example.

Q.No. 29: Explain function parameters and return values in Python with example.

Q.No. 30: Explain how to import and use libraries in Python with examples.

Question NO. 8

Q.No. 31: How can we perform different operations like slicing, concatenation, sorting, and removing items on lists in Python?

Q.No. 32: How do indexing and slicing help in accessing and manipulating sequences like lists, tuples, and strings in Python?

Q.No. 33: What are algorithm design techniques, and how does the Divide and Conquer method work,

as seen in Merge Sort?

Q.No. 34: What are Greedy Algorithms, and how do they build a solution by making locally optimal choice to reach a globally optimal result?

Q.No. 35: What is Dynamic Programming, how does it work, and in which type of problems is it used? Give one example to explain its use.

Q.No. 36: What is Breadth-First Search (BFS)? Explain its working process, give one real-world example, and mention its time complexity.

Q.No. 37: What is Depth-First Search (DFS)? Explain how it works, give a real-world example, and mention its time complexity.

Q.No. 38: Write two differences between BFS (Breadth-First Search) and DFS (Depth-First Search).

Q.No. 39: Differentiate between list and stack.

Q.No. 40: Discuss the concept of measure of tendency with example.

Question NO. 9

Q.No. 41: Differentiate between Mean and Median.

Q.No. 42: What is Standard Deviation, and how does it help us understand how much data values differ from the mean? Explain with example.

Q.No. 43: Differentiate between Data Cleaning and Data Transformation.

Q.No. 44: Compare Bar Charts with Line Graphs.

Q.No. 45: Differentiate between Histograms and Scatterplots.

Q.No. 46: Differentiate between phishing and pharming.

Q.No. 47: Differentiate between spam and phishing.

Q.No. 48: What are the positive and negative impacts of computing on individuals and society, with examples?

Q.No. 49: What is Digital Citizenship and what are the important ethical, responsible behaviors and Cybersecurity Awareness when using digital technologies and information?

Q.No. 50: What is Collaborative Problem Solving, and how does human-machine collaborative and teamwork help in solving problems?

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