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Chapters 1–8 (50 MCQs each) from supplied notes pack

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Computer Science Grade 10 — Chapter 1

Computer Systems

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Independent practice MCQs from the supplied Class 10 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. What is the smallest unit of data in a computer?

(A) Bit
(B) Byte
(C) Nibble
(D) Word

Correct Answer: A

Explanation: A bit (binary digit) is the fundamental unit of information in a computer and can have a value of either 0 or 1.

2. How many bits are there in one byte?

(A) 4
(B) 8
(C) 16
(D) 32

Correct Answer: B

Explanation: 8 — this correctly answers the question.

3. Which number system has base 2?

(A) Decimal
(B) Octal
(C) Binary
(D) Hexadecimal

Correct Answer: C

Explanation: The binary number system uses only two digits, 0 and 1, so its base is 2.

4. What is the decimal value of the binary number 101?

(A) 3
(B) 4
(C) 6
(D) 5

Correct Answer: D

Explanation: 5 — this correctly answers the question.

5. What is the ASCII value of the letter 'A'?

(A) 65
(B) 48
(C) 90
(D) 97

Correct Answer: A

Explanation: The ASCII code for uppercase 'A' is 65 (binary 01000001).

6. Which of the following is an example of system software?

(A) Microsoft Word
(B) Windows
(C) Google Chrome
(D) Adobe Photoshop

Correct Answer: B

Explanation: System software manages hardware and system resources. Windows is an operating system, which is system software.

7. What is the hexadecimal equivalent of the decimal number 15?

(A) A
(B) B
(C) F
(D) E

Correct Answer: C

Explanation: F — this correctly answers the question.

8. What is the base of the octal number system?

(A) 2
(B) 10
(C) 16
(D) 8

Correct Answer: D

Explanation: The octal number system uses base 8 and has digits 0 through 7.

9. Which coding scheme supports over 100,000 characters from all major world languages?

(A) Unicode
(B) ASCII
(C) EBCDIC
(D) ANSI

Correct Answer: A

Explanation: Unicode is an international character-encoding system designed to support all written languages, with over 100,000 characters.

10. What is the primary function of an operating system?

(A) To create documents
(B) To manage hardware and software resources
(C) To browse the internet
(D) To edit images

Correct Answer: B

Explanation: To manage hardware and software resources — this correctly answers the question.

11. Which of the following is an example of application software?

(A) Windows
(B) Linux
(C) Microsoft Word
(D) macOS

Correct Answer: C

Explanation: Application software performs specific tasks for the user. Microsoft Word is a word processor, which is application software.

12. What does a bit represent in a computer?

(A) A decimal digit
(B) A hexadecimal digit
(C) An octal digit
(D) A binary digit (0 or 1)

Correct Answer: D

Explanation: A bit is short for binary digit and can be either 0 or 1.

13. Which state of a process represents that it is ready for execution but waiting for CPU time?

(A) Ready State

(B) Start State
(C) Running State
(D) Blocked State

Correct Answer: A

Explanation: A process is in the ready state when it is ready for execution but waiting to be assigned to the processor.

14. What is the purpose of an application patch?

(A) To install a new operating system
(B) To fix bugs and improve security
(C) To create a new application
(D) To delete files from the computer

Correct Answer: B

Explanation: An application patch is designed to update, fix, or improve an existing program, addressing security vulnerabilities, bugs, or performance issues.

15. Which of the following is an example of an offline application?

(A) Google Docs
(B) Spotify
(C) Microsoft Word
(D) Gmail

Correct Answer: C

Explanation: Microsoft Word is an offline application that can run without an internet connection.

16. What is the binary representation of the decimal number 5?

(A) 100
(B) 110
(C) 111
(D) 101

Correct Answer: D

Explanation: 101 — this correctly answers the question.

17. In binary addition, what is the result of 1 + 1?

(A) 10
(B) 0
(C) 1
(D) 11

Correct Answer: A

Explanation: In binary, 1 + 1 = 2, which is written as 10 (0 with a carry of 1 to the next higher bit).

18. What happens when you add 1 to 255 in an 8-bit unsigned integer?

(A) 256
(B) 0
(C) 255
(D) Error

Correct Answer: B

Explanation: An 8-bit unsigned integer can represent values from 0 to 255. Adding 1 to 255 causes overflow, and the result wraps around to 0.

19. What is the 2's complement of the binary number 01010001?

(A) 10101110
(B) 01010010
(C) 10101111
(D) 10110001

Correct Answer: C

Explanation: 1's complement of 01010001 is 10101110. Adding 1 to the LSB gives 10101111.

20. Which Unicode encoding is most popular on the internet?

(A) UTF-7
(B) UTF-16
(C) UTF-32
(D) UTF-8

Correct Answer: D

Explanation: UTF-8 is the most popular encoding on the internet because it is backward compatible with ASCII and uses variable-length encoding.

21. What is the state of a process when it is being executed by the processor?

(A) Running State
(B) Ready State
(C) Waiting State
(D) Start State

Correct Answer: A

Explanation: A process is in the running state when it is being executed by the processor.

22. Which type of operating system is used in medical equipment and traffic control systems?

(A) Batch Processing OS
(B) Real-time OS
(C) Multiprogramming OS
(D) Time-sharing OS

Correct Answer: B

Explanation: Real-time OS — this correctly answers the question.

23. What is the primary purpose of device management in an OS?

(A) To manage files and folders
(B) To manage network resources
(C) To control input and output devices
(D) To allocate CPU time

Correct Answer: C

Explanation: Device management is the part of the operating system that controls input and output devices such as keyboards, mouse, printers, and network interfaces.

24. What is the difference between a bit and a byte?

(A) A bit is larger than a byte
(B) A bit is 16 bits
(C) A byte is 4 bits
(D) A byte is 8 bits

Correct Answer: D

Explanation: A bit is the smallest unit of data (0 or 1), and a byte consists of 8 bits.

25. Which of the following is a characteristic of offline applications?

(A) They rely on local resources
(B) They require internet
(C) They store data on remote servers
(D) They allow real-time collaboration

Correct Answer: A

Explanation: Offline applications rely entirely on the device's local resources, such as storage and processing power, to function.

B. Less Important / Secondary Topics

26. What is the octal equivalent of the decimal number 8?

(A) 10
(B) 8
(C) 12
(D) 7

Correct Answer: A

Explanation: 10 — this correctly answers the question.

27. What is the hexadecimal equivalent of the binary number 1111?

(A) A
(B) F
(C) B
(D) 15

Correct Answer: B

Explanation: F — this correctly answers the question.

28. Which of the following is an example of a driver software?

(A) Microsoft Word
(B) Google Chrome
(C) Printer driver
(D) Windows

Correct Answer: C

Explanation: Driver software acts as a bridge between the operating system and hardware devices. A printer driver is an example.

29. What is the purpose of file management in an OS?

(A) To manage network resources
(B) To control input/output devices
(C) To allocate CPU time
(D) To manage files and folders on storage devices

Correct Answer: D

Explanation: File management is the part of the operating system that manages files and folders on storage devices such as hard disk, USB flash drive, and DVD.

30. What is the decimal equivalent of the octal number 25.6?

(A) 21.75
(B) 20.75
(C) 21.5
(D) 22.75

Correct Answer: A

Explanation: 21.75 — this correctly answers the question.

31. What is the primary function of a compiler?

(A) To manage hardware resources
(B) To translate high-level code into machine code
(C) To provide a platform for applications
(D) To connect hardware to the OS

Correct Answer: B

Explanation: Compilers translate code written in a high-level programming language into machine code that the computer can execute.

32. Which of the following is a hardware method to protect devices?

(A) Antivirus software
(B) Password management
(C) Biometric authentication
(D) Data backup

Correct Answer: C

Explanation: Biometric authentication (e.g., fingerprint or facial recognition) is a hardware method that uses physical characteristics to verify identity.

33. What is the purpose of an IDE?

(A) To manage databases
(B) To browse the internet
(C) To edit images
(D) To provide a complete environment for software development

Correct Answer: D

Explanation: An IDE (Integrated Development Environment) combines a text editor, debugger, and compiler in one interface for software development.

34. What is the binary equivalent of the decimal number 10?

(A) 1010
(B) 1100
(C) 1001
(D) 1110

Correct Answer: A

Explanation: 1010 — this correctly answers the question.

35. Which of the following is true about a process?

(A) A process is a static file
(B) A process is a program in execution
(C) A process cannot contain multiple threads
(D) A process does not use any resources

Correct Answer: B

Explanation: A process is a program in execution. When a program is loaded in memory for execution, it becomes a process.

36. What is the result of the binary subtraction 10110 - 101?

(A) 10010
(B) 11000
(C) 10001
(D) 10101

Correct Answer: C

Explanation: 10001 — this correctly answers the question.

37. What is the hexadecimal equivalent of the binary number 11010111001110100001?

(A) D73A2
(B) D73B1
(C) D74A1
(D) D73A1

Correct Answer: D

Explanation: Grouping the binary number into 4 bits from the right: 1101=D, 0111=7, 0011=3, 1010=A, 0001=1. So, D73A1.

38. In an 8-bit signed integer (two's complement), what is the range of values?

(A) -128 to 127
(B) -127 to 128
(C) 0 to 255
(D) -256 to 255

Correct Answer: A

Explanation: For an n-bit signed integer using two's complement, the range is -2n□¹ to 2n□¹ - 1. For 8 bits: -128 to 127.

39. How many different values can be represented with a 10-bit binary number?

(A) 512
(B) 1024
(C) 2048
(D) 256

Correct Answer: B

Explanation: The number of different values with n bits is 2^n. For 10 bits, $2^{10} = 1024$.

40. What is the result of (1011.101)□ in decimal?

(A) 11.125
(B) 13.625
(C) 11.625
(D) 10.625

Correct Answer: C

Explanation: 11.625 — this correctly answers the question.

41. What is the 2's complement of 10101110?

(A) 01010001
(B) 10101111
(C) 01010000
(D) 01010010

Correct Answer: D

Explanation: 1's complement of 10101110 is 01010001. Adding 1 to LSB gives 01010010.

42. Which state transition occurs when a process's time slice expires?

(A) Running → Ready
(B) Running → Waiting
(C) Ready → Running
(D) Waiting → Ready

Correct Answer: A

Explanation: When a process's time slice expires in a time-sharing system, it transitions from running to ready state.

43. Which type of OS allows multiple users to interact simultaneously using time slices?

(A) Batch Processing OS
(B) Time-sharing OS
(C) Multiprogramming OS
(D) Real-time OS

Correct Answer: B

Explanation: Time-sharing OS — this correctly answers the question.

44. What is the primary function of a process scheduler?

(A) Manage file operations
(B) Manage memory allocation
(C) Manage CPU utilization
(D) Manage network resources

Correct Answer: C

Explanation: The process scheduler decides which process runs next, managing CPU utilization to ensure fairness and efficiency.

45. Which of the following is NOT a step in binary subtraction using 2's complement?

(A) Make the number of bits equal
(B) Convert the subtrahend to 2's complement
(C) Add the 2's complement to the minuend
(D) Always add the carry to the LSB

Correct Answer: D

Explanation: In 2's complement subtraction, if a carry is generated, it is ignored. In 1's complement subtraction, the carry is added to the LSB.

46. What is the result of 11101010 + 10011011 in binary?

(A) 110000101
(B) 110001101
(C) 101000101
(D) 110000011

Correct Answer: A

Explanation: 110000101 — this correctly answers the question.

47. What is the purpose of the Most Significant Bit (MSB) in signed binary numbers?

(A) To indicate the magnitude
(B) To indicate the sign (positive or negative)
(C) To indicate the base
(D) To indicate the decimal point

Correct Answer: B

Explanation: To indicate the sign (positive or negative) — this correctly answers the question.

48. Which of the following is a correct representation of -13 in 8-bit 2's complement?

(A) 11110010
(B) 11110001
(C) 11110011
(D) 11110100

Correct Answer: C

Explanation: 11110011 — this correctly answers the question.

49. What is the decimal value of the hexadecimal number 2E3?

(A) 740
(B) 738
(C) 741
(D) 739

Correct Answer: D

Explanation: 739 — this correctly answers the question.

50. What is the binary equivalent of the decimal number 45?

(A) 101101
(B) 101100
(C) 100101
(D) 110101

Correct Answer: A

Explanation: 101101 — this correctly answers the question.

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Computer Science Grade 10 — Chapter 2

Computational Thinking and Algorithms

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Independent practice MCQs from the supplied Class 10 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. What is a computing problem?

(A) A problem solved step-by-step through computation
(B) A problem solved by physical labor
(C) A problem that cannot be solved
(D) A mathematical equation only

Correct Answer: A

Explanation: A computing problem is one that is solved step-by-step through computation, taking input and producing output.

2. Which type of problem asks for a 'yes-or-no' answer?

(A) Search Problem
(B) Decision Problem
(C) Counting Problem
(D) Optimization Problem

Correct Answer: B

Explanation: In decision problems, the answer is always yes or no, such as "Is n even?".

3. In counting problems, what is the answer?

(A) Yes or No
(B) A set of values
(C) How many?
(D) A path

Correct Answer: C

Explanation: Counting problems ask for the number of possible solutions or outcomes.

4. Which principle is used when you have to choose between mutually exclusive options?

(A) Multiplication Principle
(B) Permutation
(C) Combination
(D) Addition Principle

Correct Answer: D

Explanation: The Addition Principle is used for mutually exclusive events, where you choose between options ("OR" situation).

5. What is an algorithm?

(A) A step-by-step procedure to solve a problem
(B) A programming language
(C) A type of computer
(D) A data storage device

Correct Answer: A

Explanation: An algorithm is a well-defined, step-by-step procedure or set of rules for solving a specific problem.

6. Which property of an algorithm ensures that it produces at least one output?

(A) Input
(B) Output
(C) Definiteness

(D) Finiteness

Correct Answer: B

Explanation: The output property ensures that the algorithm produces at least one output after calculations.

7. In Boolean logic, what are the two possible values?

(A) 0 and 2
(B) Yes and No
(C) True and False
(D) On and Off only

Correct Answer: C

Explanation: Boolean logic evaluates statements to either true or false (represented as 1 or 0).

8. Which sorting algorithm repeatedly compares adjacent elements and swaps them if they are in the wrong order?

(A) Selection Sort
(B) Merge Sort
(C) Insertion Sort
(D) Bubble Sort

Correct Answer: D

Explanation: Bubble sort steps through the list, compares adjacent elements, and swaps them if they are in the wrong order.

9. Which searching algorithm works on sorted arrays by repeatedly dividing the search interval in half?

(A) Binary Search
(B) Linear Search
(C) Sequential Search
(D) Random Search

Correct Answer: A

Explanation: Binary Search — this correctly answers the question.

10. What is decomposition in computational thinking?

(A) Combining problems
(B) Breaking complex problems into sub-problems
(C) Ignoring details
(D) Writing code

Correct Answer: B

Explanation: Decomposition is the process of breaking down complex problems into smaller, manageable sub-problems.

11. What is abstraction?

(A) Adding more details to a problem
(B) Making a problem complex
(C) Focusing on important information and ignoring irrelevant details
(D) Writing code

Correct Answer: C

Explanation: Focusing on important information and ignoring irrelevant details — this correctly answers the question.

12. What is modular design?

(A) Writing one large program
(B) Using only one module
(C) Avoiding functions
(D) Breaking a system into smaller, independent modules

Correct Answer: D

Explanation: Modular design is the practice of dividing a system into separate, independent modules, each performing a specific task.

13. What is a syntax error?

(A) A mistake in the structure of an expression or statement
(B) A mistake in reasoning
(C) A mistake in calculation
(D) A mistake in logic

Correct Answer: A

Explanation: Syntax errors are mistakes related to the structure of an expression or statement, similar to grammatical errors in writing.

14. What is a logical error?

(A) A mistake in the structure of code
(B) A mistake in reasoning or planning
(C) A mistake in syntax
(D) A mistake in spelling

Correct Answer: B

Explanation: Logical errors are mistakes in reasoning or planning that lead to incorrect conclusions or results.

15. What is a dry run?

(A) Running the code on a computer
(B) Compiling the code
(C) Manually checking the execution of an algorithm
(D) Debugging the code

Correct Answer: C

Explanation: An algorithm dry run means manually checking the execution of an algorithm by providing it with a specific set of inputs.

16. A student wants to buy a new computer. He has to decide among 3 desktop computers and 4 laptop computers. How many total options does he have?

(A) 12
(B) 3
(C) 4
(D) 7

Correct Answer: D

Explanation: 7 — this correctly answers the question.

17. Bilal has 3 Apples, 3 Bananas, and 3 bunches of Cherries. In how many ways can he make a fruit basket by putting one fruit of each kind?

(A) 27
(B) 9
(C) 3
(D) 12

Correct Answer: A

Explanation: 27 — this correctly answers the question.

18. Which property of an algorithm ensures that it will eventually end after a finite number of steps?

(A) Input
(B) Finiteness
(C) Effectiveness
(D) Generality

Correct Answer: B

Explanation: Finiteness ensures that there is always a finite number of steps in an algorithm before it ends.

19. Which property of an algorithm ensures that it can handle a group of problems rather than just one?

(A) Input
(B) Output

(C) Generality
(D) Finiteness

Correct Answer: C

Explanation: Generality means an algorithm should be able to handle a group of problems rather than simply one particular one.

20. In Boolean logic, what is the result of AND when both terms are true?

(A) False
(B) Undefined
(C) Cannot be determined
(D) True

Correct Answer: D

Explanation: In Boolean logic, the AND operator returns true only when both terms are true.

21. In Boolean logic, what is the result of OR when one term is true and the other is false?

(A) True
(B) False
(C) Undefined
(D) Cannot be determined

Correct Answer: A

Explanation: The OR operator returns true when at least one of the terms is true.

22. Which sorting algorithm divides the list into halves, recursively sorts each half, and then merges them?

(A) Bubble Sort
(B) Merge Sort
(C) Selection Sort
(D) Insertion Sort

Correct Answer: B

Explanation: Merge Sort — this correctly answers the question.

23. Which searching algorithm sequentially checks each element until the target is found?

(A) Binary Search
(B) Merge Search
(C) Linear Search
(D) Quick Search

Correct Answer: C

Explanation: Linear search sequentially checks each element in a list until the target element is found or the end of the list is reached.

24. What is the first step in a dry run?

(A) Observe output
(B) Compare with expected result
(C) Simulate execution
(D) Choose an input

Correct Answer: D

Explanation: The first step in a dry run is to select a specific set of input values to test the algorithm.

25. What is a trace table used for?

(A) To record variable values at each step of an algorithm
(B) To draw diagrams
(C) To write code
(D) To compile code

Correct Answer: A

Explanation: To record variable values at each step of an algorithm — this correctly answers the question.

B. Less Important / Secondary Topics

26. Which of the following is an example of a logical error?

(A) Using + instead of ×
(B) Missing semicolon
(C) Misspelled keyword
(D) Missing closing bracket

Correct Answer: A

Explanation: Using the wrong operator (e.g., + instead of ×) is a logical error because the program runs but produces incorrect results.

27. What is the result of a dry run for the algorithm that finds the largest number in [3, 1, 4, 1, 5, 9, 2, 6]?

(A) 3
(B) 9
(C) 5
(D) 6

Correct Answer: B

Explanation: The algorithm compares each element and updates max when a larger element is found. The largest number in the list is 9.

28. How many numbers from 1 to 100 are divisible by 2 or 3?

(A) 50
(B) 33
(C) 67
(D) 83

Correct Answer: C

Explanation: 67 — this correctly answers the question.

29. What is the primary goal of modular design?

(A) To make the system more complex
(B) To eliminate all functions
(C) To avoid reusability
(D) To break the system into independent, manageable parts

Correct Answer: D

Explanation: Modular design focuses on breaking down a system into smaller, manageable, and interchangeable parts known as modules.

30. What is the role of abstraction in creating generalized solutions?

(A) To identify the essential features of a problem
(B) To add more details
(C) To complicate the problem
(D) To ignore all details

Correct Answer: A

Explanation: Abstraction helps identify the essential features of a problem, which is necessary for creating a generalized solution.

31. Which of the following is NOT a core concept of computational thinking?

(A) Decomposition
(B) Compilation
(C) Pattern Recognition
(D) Abstraction

Correct Answer: B

Explanation: The four core concepts of computational thinking are decomposition, pattern recognition, abstraction, and algorithms.

32. What is the purpose of a Pigeonhole Principle?

(A) To count the number of paths
(B) To sort a list
(C) To determine if at least one container has more than one item
(D) To search for an element

Correct Answer: C

Explanation: The Pigeonhole Principle states that if n+1 objects are placed into n boxes, at least one box contains two or more objects.

33. Which of the following is a step in creating a generalized solution?

(A) Ignore common patterns
(B) Use constants instead of variables
(C) Avoid testing
(D) Extract common patterns

Correct Answer: D

Explanation: Extracting common patterns is a key step in creating generalized solutions.

34. What is the main difference between syntax and logical errors?

(A) Syntax errors prevent the program from running; logical errors do not
(B) Logical errors prevent the program from running; syntax errors do not
(C) Both prevent the program from running
(D) Neither prevents the program from running

Correct Answer: A

Explanation: Syntax errors are caught by the compiler and prevent the program from running. Logical errors allow the program to run but produce incorrect results.

35. What is the result of NOT True in Boolean logic?

(A) True
(B) False
(C) Undefined
(D) Cannot be determined

Correct Answer: B

Explanation: False — this correctly answers the question.

36. In how many ways can you select 3 different fruits from a basket of 7 different fruits? (Order does not matter)

(A) 21
(B) 56
(C) 35
(D) 84

Correct Answer: C

Explanation: “35” is correct: it matches the idea asked in the question (“In how many ways can you select 3 different fruits from a basket of 7 different fruits? (Order does not matter)”), while the other choices do not.

37. In a set of 50 students, 30 have completed a math project, 25 have completed a science project, and 15 have completed both. How many students have completed at least one project?

(A) 35
(B) 45
(C) 50
(D) 40

Correct Answer: D

Explanation: 40 — this correctly answers the question.

38. How many binary strings of length 8 have two bits at the end "00" or begin with a "1" bit?

(A) 160
(B) 128
(C) 64

(D) 192

Correct Answer: A

Explanation: Strings ending in "00": $2^6 = 64$. Strings starting with "1": $2^7 = 128$. Both: $2^5 = 32$. Total: 128 + 64 - 32 = 160.

39. What is the result of the following Boolean expression: A AND B when A = True and B = False?

(A) True
(B) False
(C) Undefined
(D) Cannot be determined

Correct Answer: B

Explanation: The AND operator returns true only when both terms are true. Since B is false, the result is false.

40. Which of the following is an example of an algorithm?

(A) A photograph
(B) A song
(C) A recipe for making tea
(D) A painting

Correct Answer: C

Explanation: A recipe is a step-by-step procedure, which is an example of an algorithm.

41. What is the result of the dry run for the algorithm that finds the largest number in [5, 12, 3, 9, 7]?

(A) 5
(B) 9
(C) 7
(D) 12

Correct Answer: D

Explanation: The algorithm compares each element and updates max. The largest number in the list is 12.

42. Which of the following is a characteristic of a good algorithm?

(A) It is effective and finite
(B) It has infinite steps
(C) It is ambiguous
(D) It ignores input

Correct Answer: A

Explanation: A good algorithm must be effective (simple operations) and finite (must end after a finite number of steps).

43. What is the primary purpose of pattern recognition in computational thinking?

(A) To ignore patterns
(B) To identify similarities and differences in data
(C) To complicate problems
(D) To delete data

Correct Answer: B

Explanation: To identify similarities and differences in data — this correctly answers the question.

44. Which of the following is NOT a benefit of modular design?

(A) Reusability
(B) Maintainability
(C) Increased complexity
(D) Testability

Correct Answer: C

Explanation: Increased complexity — this correctly answers the question.

45. What is the correct order of steps in a dry run?

(A) Simulate → Choose input → Observe → Compare

(B) Observe → Compare → Choose input → Simulate
(C) Compare → Observe → Simulate → Choose input
(D) Choose input → Simulate → Observe → Compare

Correct Answer: D

Explanation: The steps of a dry run are: choose input, simulate execution, observe output, and compare with expected result.

46. What is the result of 111000 - 100110 using 1's complement?

(A) 010010
(B) 010001
(C) 010011
(D) 010100

Correct Answer: A

Explanation: 010010 — this correctly answers the question.

47. Which of the following is a valid property of an algorithm?

(A) Infiniteness
(B) Definiteness
(C) Ambiguity
(D) Complexity

Correct Answer: B

Explanation: Definiteness is a property of algorithms where every step must be clearly and accurately stated.

48. What is the primary difference between a decision problem and a search problem?

(A) Decision finds a value; search gives yes/no
(B) Both give yes/no
(C) Decision gives yes/no; search finds a value
(D) Both find values

Correct Answer: C

Explanation: Decision problems ask for a yes/no answer, while search problems ask for a value or set of values.

49. Which of the following is an example of a logical error in a search engine query?

(A) Misspelled keyword
(B) Missing currency symbol
(C) Missing quotation marks
(D) Including used phones when you meant to exclude them

Correct Answer: D

Explanation: Including used phones when the user meant to exclude them is a logical error in the query's reasoning.

50. What is the result of the binary addition 10010 + 111?

(A) 11001
(B) 11000
(C) 10101
(D) 11100

Correct Answer: A

Explanation: 11001 — this correctly answers the question.

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Computer Science Grade 10 — Chapter 3

Programming Fundamentals

by Public Library

Independent practice MCQs from the supplied Class 10 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. Which language is primarily used for structuring the content of a webpage?

(A) HTML
(B) CSS
(C) JavaScript
(D) Python

Correct Answer: A

Explanation: HTML — this correctly answers the question.

2. What is the primary purpose of CSS in web development?

(A) To add interactivity
(B) To style and layout web pages
(C) To manage databases
(D) To handle server-side logic

Correct Answer: B

Explanation: To style and layout web pages — this correctly answers the question.

3. Which HTML element is used to create a text input field in a form?

(A) `<label>`
(B) `<form>`
(C) `<input>`
(D) `<textarea>`

Correct Answer: C

Explanation: `<input>` — this correctly answers the question.

4. In HTML tables, which tag is used to define a header cell?

(A) `<td>`
(B) `<tr>`
(C) `<table>`
(D) `<th>`

Correct Answer: D

Explanation: The `<th>` tag defines a header cell with bold and centered content.

5. Which CSS rule is used to define the intermediate steps of an animation?

(A) `@keyframes`
(B) `animation`
(C) `transition`
(D) `transform`

Correct Answer: A

Explanation: The `@keyframes` rule defines the animation by specifying what the element should look like at different points.

6. In JavaScript, what is the index of the first element in an array?

(A) 1
(B) 0
(C) -1
(D) Depends on the array

Correct Answer: B

Explanation: JavaScript arrays are zero-indexed; the first element is at index 0.

7. Which JavaScript method adds a new item to the end of an array?

(A) `pop()`
(B) `shift()`
(C) `push()`
(D) `unshift()`

Correct Answer: C

Explanation: `push()` — this correctly answers the question.

8. Which HTML tag is used to create an unordered list?

(A) `<ol>`
(B) `<li>`
(C) `<list>`
(D) `<ul>`

Correct Answer: D

Explanation: The `<ul>` tag creates an unordered list, which uses bullets.

9. What is the primary purpose of a unit test?

(A) To test individual parts of the code for correctness
(B) To style the user interface
(C) To deploy code to production
(D) To manage databases

Correct Answer: A

Explanation: Unit tests test individual units of code, such as functions or modules, to ensure they work correctly.

10. In debugging, what is a breakpoint?

(A) A point where the program crashes
(B) A marker that pauses program execution at a specific line
(C) A type of error
(D) A method to delete code

Correct Answer: B

Explanation: A breakpoint is a marker that tells the debugger to pause execution at a specific line of code.

11. What is front-end development also called?

(A) Server-side
(B) Database-side
(C) Client-side
(D) Back-end

Correct Answer: C

Explanation: Front-end development is also referred to as client-side because it deals with what the user sees in the browser.

12. Which of the following is a back-end language?

(A) HTML
(B) CSS
(C) JavaScript
(D) Python

Correct Answer: D

Explanation: Python is a server-side (back-end) programming language, along with Ruby and PHP.

13. What does responsive design adjust?

(A) Layout and functionality to fit different screen sizes
(B) Only the font size
(C) Only the images

(D) Only the color scheme

Correct Answer: A

Explanation: Layout and functionality to fit different screen sizes — this correctly answers the question.

14. What is the purpose of the `<caption>` tag in an HTML table?

(A) To add a header cell
(B) To add a title or description to the table
(C) To add a data cell
(D) To add a row

Correct Answer: B

Explanation: To add a title or description to the table — this correctly answers the question.

15. What is the purpose of the `animation` property in CSS?

(A) To define the animation
(B) To add transition
(C) To apply the animation to an element
(D) To change the color

Correct Answer: C

Explanation: To apply the animation to an element — this correctly answers the question.

16. What is the primary purpose of the `<textarea>` element in an HTML form?

(A) To create a drop-down list
(B) To create a radio button
(C) To create a checkbox
(D) To create a multi-line text input

Correct Answer: D

Explanation: The `<textarea>` element creates a large box for writing multi-line text.

17. Which input type is best suited for entering an email address in an HTML form?

(A) `type="email"`
(B) `type="text"`
(C) `type="mail"`
(D) `type="address"`

Correct Answer: A

Explanation: The `type="email"` input is specifically designed for email addresses and provides built-in validation.

18. What is the default marker style for an unordered list in HTML?

(A) Numbers
(B) Bullets
(C) Letters
(D) Roman numerals

Correct Answer: B

Explanation: Unordered lists use bullets (circles, squares) as markers by default.

19. Which CSS property is used to merge the borders of adjacent table cells into a single line?

(A) `border-style`
(B) `border-spacing`
(C) `border-collapse`
(D) `border-width`

Correct Answer: C

Explanation: `border-collapse` — this correctly answers the question.

20. In CSS animation, what does `infinite` mean in the `animation` property?

(A) The animation runs once
(B) The animation runs twice
(C) The animation stops after 1 second

(D) The animation repeats forever

Correct Answer: D

Explanation: The `infinite` value for `animation-iteration-count` means the animation repeats forever.

21. In JavaScript, which function converts all elements of an array into a single string?

(A) `toString()`
(B) `concat()`
(C) `slice()`
(D) `indexOf()`

Correct Answer: A

Explanation: `toString()` — this correctly answers the question.

22. Which JavaScript method searches for and returns the index of a given element in an array?

(A) `find()`
(B) `indexOf()`
(C) `search()`
(D) `locate()`

Correct Answer: B

Explanation: The `indexOf()` method searches for an element and returns its index if found.

23. What is the purpose of `innerHTML = ""` in JavaScript when updating a list?

(A) To delete the list element
(B) To add a new item
(C) To clear the existing content of the list
(D) To style the list

Correct Answer: C

Explanation: To clear the existing content of the list — this correctly answers the question.

24. What is a watchpoint in debugging?

(A) A point where the program crashes
(B) A type of error
(C) A method to delete code
(D) A rule on a variable that pauses execution when the condition is met

Correct Answer: D

Explanation: A watchpoint establishes a rule on a variable or expression and pauses execution when the condition is met.

25. Which of the following is NOT a component of programming software?

(A) Spreadsheet
(B) Text Editor
(C) Compiler
(D) Debugger

Correct Answer: A

Explanation: Spreadsheets are productivity software, not programming software. Programming software includes text editors, compilers, and debuggers.

B. Less Important / Secondary Topics

26. What is the purpose of a `@keyframes` rule in CSS?

(A) To define the intermediate steps of an animation
(B) To apply animation to an element
(C) To change the color of an element
(D) To add a transition

Correct Answer: A

Explanation: The `@keyframes` rule defines the animation by specifying styles at different points using percentages.

27. Which JavaScript method removes the last item from an array?

(A) `push()`
(B) `pop()`
(C) `shift()`
(D) `unshift()`

Correct Answer: B

Explanation: The `pop()` method removes the last element from an array and returns it.

28. What is the purpose of the `required` attribute in an HTML form element?

(A) To make the field read-only
(B) To make the field optional
(C) To make the field mandatory
(D) To hide the field

Correct Answer: C

Explanation: To make the field mandatory — this correctly answers the question.

29. Which CSS property is used to add space inside a table cell between the border and content?

(A) `cellspacing`
(B) `margin`
(C) `border-collapse`
(D) `padding`

Correct Answer: D

Explanation: `padding` — this correctly answers the question.

30. Which of the following is a valid CSS animation direction value?

(A) `alternate`
(B) `backward`
(C) `forward`
(D) `toggle`

Correct Answer: A

Explanation: The `alternate` value for `animation-direction` plays the animation forward then backward.

31. In JavaScript, what does the `slice(2, 4)` method do on an array?

(A) Removes elements from index 2 to 4
(B) Extracts a subset from index 2 up to (but not including) index 4
(C) Adds elements at index 2 and 4
(D) Reverses elements from index 2 to 4

Correct Answer: B

Explanation: Extracts a subset from index 2 up to (but not including) index 4 — this correctly answers the question.

32. Which of the following is an Abstract Data Type (ADT)?

(A) Array
(B) Integer
(C) List
(D) Boolean

Correct Answer: C

Explanation: A list is an Abstract Data Type (ADT) defined by its operations rather than its implementation.

33. What is the primary purpose of unit testing?

(A) To test the entire application at once
(B) To style the user interface
(C) To deploy the application
(D) To test individual units of code for correctness

Correct Answer: D

Explanation: Unit testing tests individual units of code (functions, modules) to ensure they work correctly.

34. In debugging, what is a breakpoint used for?

(A) To pause program execution at a specific line
(B) To crash the program
(C) To delete code
(D) To add new features

Correct Answer: A

Explanation: A breakpoint pauses program execution at a specific line so you can inspect variables and check the flow.

35. Which of the following is NOT a valid HTML input type?

(A) `email`
(B) `textbox`
(C) `tel`
(D) `date`

Correct Answer: B

Explanation: `textbox` is not a valid HTML input type. The valid types include `text`, `email`, `tel`, `date`, etc.

36. What is the difference between `innerHTML` and `textContent` in JavaScript?

(A) `innerHTML` is safer than `textContent`
(B) `textContent` inserts HTML, `innerHTML` inserts text
(C) `innerHTML` can execute scripts, `textContent` only sets plain text
(D) Both are the same

Correct Answer: C

Explanation: `innerHTML` allows inserting HTML content and can execute scripts (security risk). `textContent` only sets plain text and is safer.

37. Which of the following is a valid reason to use a `@keyframes` rule in CSS?

(A) To rotate an element
(B) To change the color of text
(C) To add a border
(D) To define animation steps

Correct Answer: D

Explanation: The `@keyframes` rule defines the animation by specifying styles at different points (using percentages or `from`/`to`).

38. What is the result of the JavaScript code: `const fruits = ["apple", "banana", "orange"]; console.log(fruits[1]);`

(A) banana
(B) apple
(C) orange
(D) undefined

Correct Answer: A

Explanation: Array indices start at 0. `fruits[1]` refers to the second element, which is "banana".

39. Which of the following is a correct way to create a bullet list from an array in JavaScript?

(A) Use `innerHTML` to add `<li>` tags directly
(B) Use `createElement("li")` and `appendChild()`
(C) Use `document.write()`
(D) Use `alert()`

Correct Answer: B

Explanation: The correct approach is to create a new `<li>` element using `document.createElement("li")` and append it to the list using `appendChild()`.

40. What is the main difference between a text editor and an IDE?

(A) Text editors are more powerful than IDEs

(B) Text editors are only for writing code
(C) IDEs combine text editor, debugger, and compiler in one interface
(D) IDEs cannot debug code

Correct Answer: C

Explanation: An IDE is a comprehensive tool that combines a text editor, debugger, and compiler in one interface, while a text editor is a basic tool for writing code.

41. What is the purpose of the `@keyframes` rule in CSS animation?

(A) To apply animation
(B) To add transition
(C) To change the color
(D) To define the animation steps

Correct Answer: D

Explanation: The `@keyframes` rule defines the animation by specifying what the element should look like at different points.

42. Which of the following is a key benefit of using an IDE for programming?

(A) It provides syntax highlighting and code completion
(B) It reduces code quality
(C) It eliminates the need for debugging
(D) It automatically writes code

Correct Answer: A

Explanation: IDEs provide features like syntax highlighting, code completion, and debugging tools that enhance programming efficiency.

43. What is the result of the following JavaScript code: `const numbers = [1, 2, 3, 4, 5]; numbers.push(6); console.log(numbers);`

(A) [1, 2, 3, 4, 5]
(B) [1, 2, 3, 4, 5, 6]
(C) [6, 1, 2, 3, 4, 5]
(D) [1, 2, 3, 4, 5, 6, 7]

Correct Answer: B

Explanation: "[1, 2, 3, 4, 5, 6]" is correct: it matches the idea asked in the question ("What is the result of the following JavaScript code: `const numbers = [1, 2, 3, 4, 5]; numbers.push(6); console.log(numbers);`"), while the other choices do not.

44. Which of the following is a valid CSS animation timing function?

(A) `linear`
(B) `ease-in-out`
(C) All of the above
(D) `ease`

Correct Answer: C

Explanation: All of the above — this correctly answers the question.

45. What is the purpose of the `<label>` element in an HTML form?

(A) To create an input field
(B) To create a button
(C) To create a drop-down list
(D) To provide a caption for an input field

Correct Answer: D

Explanation: The `<label>` element provides a caption for an input field and links to it using the `for` attribute.

46. What is the main advantage of using a `for` loop in JavaScript?

(A) It allows repeated execution of a block of code
(B) It can only iterate over arrays
(C) It cannot be used with arrays

(D) It is slower than other loops

Correct Answer: A

Explanation: A `for` loop allows repeated execution of a block of code, making it useful for tasks like iterating over arrays.

47. Which of the following is a correct way to clear a list in JavaScript before updating it?

(A) `listElement.innerHTML = "clear";`
(B) `listElement.innerHTML = "";`
(C) `listElement.clear();`
(D) `listElement.delete();`

Correct Answer: B

Explanation: `listElement.innerHTML = "";` — this correctly answers the question.

48. What is the purpose of a `@keyframes` rule in CSS?

(A) To apply animation
(B) To add transition
(C) To define the animation steps
(D) To change the color

Correct Answer: C

Explanation: The `@keyframes` rule defines the animation by specifying what the element should look like at different points.

49. Which of the following is a benefit of using version control in programming?

(A) It slows down development
(B) It eliminates the need for testing
(C) It automatically fixes bugs
(D) It tracks changes and allows collaboration

Correct Answer: D

Explanation: It tracks changes and allows collaboration — this correctly answers the question.

50. What is the result of the JavaScript code: `const arr = [1, 2, 3]; arr.pop(); console.log(arr);`

(A) [1, 2]
(B) [1, 2, 3]
(C) [2, 3]
(D) [1, 3]

Correct Answer: A

Explanation: The `pop()` method removes the last element from the array, leaving [1, 2].

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Computer Science Grade 10 — Chapter 4

Data and Analysis

by Public Library

Independent practice MCQs from the supplied Class 10 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. What is the primary goal of data science?

(A) To extract meaningful insights from data
(B) To create websites
(C) To design hardware
(D) To manage networks

Correct Answer: A

Explanation: Data Science uses scientific methods, algorithms, and systems to extract knowledge and insights from structured and unstructured data.

2. Which of the following is a subset of Artificial Intelligence?

(A) Data Science
(B) Machine Learning
(C) Cloud Computing
(D) Blockchain

Correct Answer: B

Explanation: Machine Learning is a subset of Artificial Intelligence that focuses on algorithms and statistical modeling to learn from data.

3. What does the Turing Test measure?

(A) Computer speed
(B) Data storage
(C) Machine intelligence
(D) Network security

Correct Answer: C

Explanation: Machine intelligence — this correctly answers the question.

4. In supervised learning, what type of data is used for training?

(A) Unlabeled data
(B) Random data
(C) No data
(D) Labeled data

Correct Answer: D

Explanation: Supervised learning uses labeled data, where questions with correct answers are provided to the machine.

5. Which machine learning model learns through rewards and penalties?

(A) Reinforcement Learning
(B) Supervised Learning
(C) Unsupervised Learning
(D) Deep Learning

Correct Answer: A

Explanation: Reinforcement learning trains machines with positive or negative feedback (rewards and penalties).

6. What is the technique to predict which customers might stop using a service called?

(A) Data Visualization
(B) Churn Prediction

(C) Market Validation
(D) Sentiment Analysis

Correct Answer: B

Explanation: Churn prediction is the technique to find out the possibility of a customer to stop taking the services or products of a company.

7. Which chart type is best for showing proportions of a whole?

(A) Bar Chart
(B) Line Chart
(C) Pie Chart
(D) Scatter Plot

Correct Answer: C

Explanation: Pie charts are used to represent proportions of various categories of data in a whole.

8. What does NLP stand for?

(A) Network Layer Protocol
(B) New Learning Program
(C) Numerical Logic Processing
(D) Natural Language Processing

Correct Answer: D

Explanation: NLP (Natural Language Processing) is a branch of AI that enables computers to understand human language.

9. Which of the following is a database management software?

(A) MySQL
(B) Microsoft Word
(C) Google Chrome
(D) Adobe Photoshop

Correct Answer: A

Explanation: MySQL is a well-known database management software used to create and manage databases.

10. What is the first stage of the data science life cycle?

(A) Data Collection
(B) Problem Definition
(C) Data Cleaning
(D) Model Deployment

Correct Answer: B

Explanation: The first stage of the data science life cycle is Problem Definition, where the business problem is defined with clear objectives.

11. What is a KPI in the data science life cycle?

(A) A type of data
(B) A visualization tool
(C) A measurable target to track progress
(D) A machine learning model

Correct Answer: C

Explanation: KPIs (Key Performance Indicators) are measurable targets that help track progress and success of a process.

12. Which of the following is a data visualization method?

(A) MySQL
(B) Python
(C) Windows
(D) Bar Chart

Correct Answer: D

Explanation: Bar Chart is a method of data visualization used to compare discrete values.

13. What is the primary purpose of a scatter plot?

(A) To show the relationship between numerical variables
(B) To show trends over time
(C) To show proportions
(D) To show distribution

Correct Answer: A

Explanation: To show the relationship between numerical variables — this correctly answers the question.

14. What is machine learning?

(A) A type of computer hardware
(B) A subset of AI that enables computers to learn from data
(C) A database management system
(D) A visualization tool

Correct Answer: B

Explanation: Machine Learning is a subset of AI that enables computers to learn from data without being explicitly programmed.

15. Which of the following is a use of data visualization?

(A) Business Intelligence
(B) Healthcare
(C) All of the above
(D) Education

Correct Answer: C

Explanation: Data visualization is used in business intelligence, healthcare, education, and many other fields.

16. What is the difference between AI, ML, and Data Science?

(A) AI is a subset of ML; ML is a subset of Data Science
(B) Data Science is a subset of AI
(C) They are all the same
(D) AI is the broadest field; ML is a subset of AI; Data Science overlaps both

Correct Answer: D

Explanation: AI is the broadest field. ML is a subset of AI. Data Science overlaps with both AI and ML but also includes statistics and data analysis.

17. Which of the following is an example of supervised learning?

(A) Predicting house prices
(B) Grouping customers by shopping habits
(C) Training a robot to walk
(D) Finding patterns in unlabeled data

Correct Answer: A

Explanation: Predicting house prices is a supervised learning task because it uses labeled data (historical prices) to predict a continuous value.

18. Which of the following is an example of unsupervised learning?

(A) Email spam detection
(B) Customer segmentation
(C) Predicting stock prices
(D) Training a robot to navigate a maze

Correct Answer: B

Explanation: Customer segmentation is an unsupervised learning task because it groups customers based on similarities without predefined labels.

19. Which of the following is an example of reinforcement learning?

(A) Classifying emails as spam/not spam
(B) Grouping news articles by topic

(C) Training a robot to walk
(D) Predicting weather

Correct Answer: C

Explanation: Training a robot to walk is a reinforcement learning task because the robot learns through rewards and penalties.

20. What is churn prediction?

(A) Predicting which products will sell
(B) Predicting which employees will be hired
(C) Predicting which websites will be popular
(D) Predicting which customers will leave

Correct Answer: D

Explanation: Churn prediction is the technique to find out the possibility of a customer to stop taking the services or products of a company.

21. What is the primary purpose of sentiment analysis in NLP?

(A) To determine the emotional tone of a message
(B) To translate languages
(C) To filter spam emails
(D) To extract data from documents

Correct Answer: A

Explanation: Sentiment analysis analyzes text to determine if the emotional tone is positive, negative, or neutral.

22. Which type of data visualization is best for showing the distribution of a single numerical value?

(A) Bar Chart
(B) Histogram
(C) Pie Chart
(D) Heatmap

Correct Answer: B

Explanation: A histogram is used to show the distribution of a single numerical value over continuous intervals.

23. Which of the following is NOT a type of data visualization?

(A) Quantitative
(B) Categorical
(C) Numerical
(D) Temporal

Correct Answer: C

Explanation: The types of data visualization include Quantitative, Categorical, Temporal, Spatial, Multivariate, Interactive, Statistical, and Information. "Numerical" is not a type.

24. What is the primary benefit of using data visualization in business?

(A) It makes data more complex
(B) It replaces data analysis
(C) It eliminates the need for data
(D) It helps make faster, better decisions

Correct Answer: D

Explanation: It helps make faster, better decisions — this correctly answers the question.

25. In the data science life cycle, what is the purpose of data cleaning?

(A) To fix errors and prepare data for analysis
(B) To collect data
(C) To deploy the model
(D) To visualize data

Correct Answer: A

Explanation: Data cleaning (preprocessing) is about fixing data to make sure it's ready for analysis by removing errors and handling missing values.

B. Less Important / Secondary Topics

26. What is the relationship between a database and machine learning?

(A) Databases provide structured, clean data for ML models
(B) They are unrelated
(C) ML replaces databases
(D) Databases are only for storing images

Correct Answer: A

Explanation: Databases store structured, clean data that machine learning models need for training.

27. Which of the following is a tool used for data visualization?

(A) MySQL
(B) Tableau
(C) Apache
(D) Windows

Correct Answer: B

Explanation: Tableau — this correctly answers the question.

28. What is the primary purpose of a line chart?

(A) To compare discrete values
(B) To show proportions
(C) To show trends over time
(D) To show distribution

Correct Answer: C

Explanation: Line charts are used to display trends of data over a period of time.

29. What is the difference between a bar chart and a histogram?

(A) Bar charts show trends; histograms show proportions
(B) Bar charts show proportions; histograms show trends
(C) Bar charts and histograms are the same
(D) Bar charts compare discrete values; histograms show distribution

Correct Answer: D

Explanation: Bar charts compare discrete values; histograms show distribution — this correctly answers the question.

30. What is behavioral segmentation?

(A) Dividing customers into groups based on their behavior
(B) Dividing customers based on age
(C) Dividing customers based on location
(D) Dividing customers based on gender

Correct Answer: A

Explanation: Behavioral segmentation is the process of dividing customers into groups based on their behavior towards a service or product.

31. What is the key aspect of behavioral segmentation?

(A) Age
(B) Purchase frequency
(C) Gender
(D) Location

Correct Answer: B

Explanation: Purchase frequency — this correctly answers the question.

32. Which stage of the data science life cycle ensures the model's accuracy and reliability?

(A) Model Deployment
(B) Data Analysis
(C) Model Evaluation

(D) Maintenance and Monitoring

Correct Answer: C

Explanation: Model Evaluation — this correctly answers the question.

33. What is the purpose of a heatmap in data visualization?

(A) To show trends over time
(B) To show proportions of a whole
(C) To show distribution
(D) To represent data in matrix form using color intensity

Correct Answer: D

Explanation: Heatmaps represent data in matrix form, with values shown by color intensity.

34. What is the role of APIs in the data collection stage of the data science life cycle?

(A) To act as messengers between software for data collection
(B) To store data
(C) To visualize data
(D) To clean data

Correct Answer: A

Explanation: APIs are small programs that act like messengers between two or more software, allowing data collection from online services.

35. What is the primary purpose of the "Model Deployment" stage in the data science life cycle?

(A) To collect data
(B) To integrate the model into a system for use
(C) To clean the data
(D) To evaluate the model

Correct Answer: B

Explanation: Model deployment integrates the model into a website, application, or database for real-world use.

36. Which type of machine learning model would be most suitable for training a robot to navigate through a maze?

(A) Supervised Learning
(B) Unsupervised Learning
(C) Reinforcement Learning
(D) Deep Learning

Correct Answer: C

Explanation: Reinforcement Learning — this correctly answers the question.

37. What is the primary purpose of the "Model Evaluation" stage in the data science life cycle?

(A) To collect data
(B) To deploy the model
(C) To clean the data
(D) To measure the model's accuracy and reliability

Correct Answer: D

Explanation: Model evaluation measures how accurate and reliable the model is and whether it meets performance goals.

38. Which data visualization method is best for showing the relationship between three variables?

(A) Bubble Chart
(B) Bar Chart
(C) Pie Chart
(D) Scatter Plot

Correct Answer: A

Explanation: Bubble charts are similar to scatter plots but have a third variable represented by the size of the bubble.

39. In reinforcement learning, what is the role of the "Agent"?

(A) The environment where actions are taken
(B) The learner or decision-maker
(C) The reward received
(D) The penalty received

Correct Answer: B

Explanation: In reinforcement learning, the agent is the learner or decision-maker that takes actions in an environment.

40. What is the primary function of an analytics platform in IoT data processing?

(A) To store data
(B) To transmit data
(C) To connect, organize, visualize, and analyze data
(D) To collect data

Correct Answer: C

Explanation: To connect, organize, visualize, and analyze data — this correctly answers the question.

41. In behavioral segmentation, what does "purchase frequency" refer to?

(A) How loyal a customer is
(B) When a customer uses the product
(C) How a customer responds to promotions
(D) How often a customer buys

Correct Answer: D

Explanation: Purchase frequency refers to how often a customer buys a product or service.

42. Which of the following is a key benefit of data visualization?

(A) It helps detect errors and anomalies
(B) It makes data more complex
(C) It replaces data analysis
(D) It eliminates the need for data cleaning

Correct Answer: A

Explanation: Data visualization helps detect errors, anomalies, and outliers in data because unusual patterns stand out visually.

43. What is the primary purpose of a data warehouse in the context of machine learning?

(A) To store images only
(B) To provide a central repository of integrated data
(C) To replace ML models
(D) To visualize data

Correct Answer: B

Explanation: A data warehouse provides a central repository of integrated data from multiple sources, which is useful for ML model training.

44. Which NLP application is used to convert spoken words into text for medical reports?

(A) Email Filtering
(B) Sentiment Analysis
(C) Speech Recognition
(D) Document Analysis

Correct Answer: C

Explanation: Speech recognition systems are used in healthcare to convert speech into text for medical reports and updating electronic health records.

45. What is the main challenge of using public cloud for sensitive data?

(A) It is too fast
(B) It is too expensive

(C) It does not require internet
(D) It offers less control over data

Correct Answer: D

Explanation: Public cloud offers less control over data and security concerns, which can be a challenge for sensitive data.

46. What is the primary purpose of a customer profile?

(A) To describe the ideal customer
(B) To describe the product
(C) To describe the competition
(D) To describe the market

Correct Answer: A

Explanation: A customer profile is a detailed description of a business's ideal customer based on market research and real data.

47. Which of the following is a key component of a business pitch?

(A) Problem
(B) All of the above
(C) Solution
(D) Market

Correct Answer: B

Explanation: All of the above — this correctly answers the question.

48. What is the primary purpose of market validation?

(A) To create a product
(B) To market a product
(C) To determine if there is genuine demand
(D) To sell a product

Correct Answer: C

Explanation: Market validation is the process of determining whether there is a genuine demand for a product or service before launching it.

49. Which research method is best for exploring a new topic in depth?

(A) Quantitative Research
(B) Surveys
(C) Experiments
(D) Qualitative Research

Correct Answer: D

Explanation: Qualitative research is exploratory and provides rich, detailed data about human behavior, experiences, and opinions.

50. Which of the following is a key difference between qualitative and quantitative research in terms of sample size?

(A) Qualitative uses small samples; quantitative uses large samples
(B) Qualitative uses large samples; quantitative uses small samples
(C) Both use the same sample size
(D) Sample size is irrelevant

Correct Answer: A

Explanation: Qualitative research typically uses small samples for in-depth understanding, while quantitative research uses large samples for generalizable results.

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Computer Science Grade 10 — Chapter 5

Applications of Computer Science

by Public Library

Independent practice MCQs from the supplied Class 10 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. What does IoT stand for?

(A) Internet of Things
(B) Internet of Technology
(C) Integration of Things
(D) Interface of Technology

Correct Answer: A

Explanation: IoT stands for Internet of Things, an infrastructure that connects multiple devices for man-to-machine and machine-to-machine interaction.

2. Which technology is used for real-time tracking of products during their journey across the supply chain?

(A) IoT
(B) Blockchain
(C) Cloud Computing
(D) AI Assistant

Correct Answer: B

Explanation: Blockchain technology is very useful for real-time tracking of products during their journey across the supply chain.

3. What is the primary purpose of a sensor in an IoT system?

(A) To store data
(B) To process data
(C) To collect data from the environment
(D) To display data

Correct Answer: C

Explanation: Sensors are used in IoT systems to collect data from our surroundings.

4. Which of the following is NOT a foundational component of IoT?

(A) Sensors/Devices
(B) Cloud
(C) Connectivity
(D) Blockchain

Correct Answer: D

Explanation: The five foundational components of IoT are Sensors/Devices, User Interface, Cloud, Connectivity, and Data Processing. Blockchain is not one of them.

5. What is the main purpose of speech recognition?

(A) To convert human speech into text or commands
(B) To identify a person by their voice
(C) To translate languages
(D) To create voice assistants

Correct Answer: A

Explanation: Speech recognition is software that converts human speech into text form or commands that devices can understand.

6. Which branch of AI enables computers to understand text and spoken words like humans?

(A) Computer Vision
(B) Natural Language Processing (NLP)
(C) Robotics
(D) Expert Systems

Correct Answer: B

Explanation: NLP is a branch of AI that gives computers the ability to understand text and spoken words the same way humans do.

7. What is the primary purpose of robotics in healthcare?

(A) To entertain patients
(B) To manage hospital inventory only
(C) To assist in surgery and sanitization
(D) To replace all doctors

Correct Answer: C

Explanation: To assist in surgery and sanitization — this correctly answers the question.

8. What does bias in AI refer to?

(A) Fairness and equality
(B) Accuracy of AI systems
(C) Speed of AI algorithms
(D) Unfairness or discrimination against certain groups

Correct Answer: D

Explanation: Bias means unfairness or discrimination against someone based on race, ethnicity, gender, age, etc.

9. Which of the following is a responsibility of AI system designers?

(A) To ensure fairness and prevent injustice
(B) To maximize profits
(C) To ignore user privacy
(D) To create deepfake videos

Correct Answer: A

Explanation: AI system designers must ensure that the use of AI technology does not result in injustice to specific groups of people.

10. What is the primary goal of cloud computing?

(A) To store data only on local devices
(B) To deliver computing services over the internet
(C) To replace all hardware
(D) To eliminate the need for software

Correct Answer: B

Explanation: Cloud computing is the delivery of computing services such as servers, storage, database, networking, and application software over the cloud (Internet).

11. Which IoT application uses sensors to monitor soil conditions and control irrigation?

(A) Smart Home
(B) Smart Grid
(C) Smart Farming
(D) Smart Transport

Correct Answer: C

Explanation: Smart farming uses sensors that monitor light, humidity, temperature, moisture, and acidity to help farmers control irrigation.

12. What is the primary function of a smart grid?

(A) To monitor traffic
(B) To automate hotel services
(C) To track products in supply chain
(D) To manage energy production and distribution in real-time

Correct Answer: D

Explanation: To manage energy production and distribution in real-time — this correctly answers the question.

13. In an IoT system, what is the role of connectivity?

(A) To transmit data between devices and cloud
(B) To collect data
(C) To store data
(D) To analyze data

Correct Answer: A

Explanation: To transmit data between devices and cloud — this correctly answers the question.

14. Which of the following is a key feature of blockchain technology?

(A) Centralized control
(B) Immutability
(C) Single point of failure
(D) Limited transparency

Correct Answer: B

Explanation: Immutability — this correctly answers the question.

15. What is the primary purpose of cryptocurrency?

(A) To store data
(B) To track supply chain
(C) To facilitate direct payments without intermediaries
(D) To monitor patients

Correct Answer: C

Explanation: Cryptocurrency is a digital currency that facilitates direct payment without the involvement of intermediaries such as a bank.

16. Which AI technology is used in healthcare for personalized treatment recommendations based on medical imaging?

(A) NLP
(B) Robotics
(C) Speech Recognition
(D) Computer Vision

Correct Answer: D

Explanation: Computer vision is a specialized branch of AI that teaches computers to draw meaningful results from digital images, such as analyzing medical imaging.

17. What is the primary function of an AI agent like Siri or Alexa?

(A) To understand and respond to voice commands
(B) To manage databases
(C) To build websites
(D) To design hardware

Correct Answer: A

Explanation: To understand and respond to voice commands — this correctly answers the question.

18. In the context of AI, what does "deepfake" refer to?

(A) A type of deep learning
(B) Computer-created realistic fake videos
(C) A secure encryption method
(D) A data visualization technique

Correct Answer: B

Explanation: Deepfake videos are computer-created AI-based realistic fake videos that misrepresent someone.

19. What is the purpose of a chatbot in customer service?

(A) To replace all human employees

(B) To design websites
(C) To automate customer interactions and respond to queries
(D) To manage supply chain

Correct Answer: C

Explanation: To automate customer interactions and respond to queries — this correctly answers the question.

20. Which of the following is a benefit of cloud computing?

(A) Increased hardware costs
(B) Limited scalability
(C) Dependency on local servers
(D) Cost reduction and scalability

Correct Answer: D

Explanation: Cost reduction and scalability — this correctly answers the question.

21. What is the role of the cloud in an IoT system?

(A) To store, process, and manage data
(B) To collect data
(C) To transmit data
(D) To display data

Correct Answer: A

Explanation: The IoT cloud stores data collected from devices, processes it, manages it, and allows remote access.

22. Explain the difference between public and private cloud.

(A) Public cloud is for one organization; private cloud is for many
(B) Public cloud is shared by many; private cloud is dedicated to one organization
(C) Both are the same
(D) Public cloud is more secure than private cloud

Correct Answer: B

Explanation: A public cloud is shared by multiple users, while a private cloud is exclusively used by a single organization.

23. What is the difference between NLP and Computer Vision?

(A) NLP understands images; Computer Vision understands text
(B) Both are the same
(C) NLP understands text and speech; Computer Vision understands images and videos
(D) NLP is for robots; Computer Vision is for chatbots

Correct Answer: C

Explanation: NLP understands text and speech; Computer Vision understands images and videos — this correctly answers the question.

24. How does blockchain ensure security and transparency?

(A) Through centralized control
(B) By hiding all transactions
(C) By allowing one person to control the ledger
(D) Through cryptographic hashing and consensus mechanisms

Correct Answer: D

Explanation: Blockchain ensures security through cryptographic hashing and consensus mechanisms, and transparency because all transactions are visible to network participants.

25. What are the key responsibilities of AI system designers regarding privacy?

(A) To safeguard user data privacy and obtain consent
(B) To share user data freely
(C) To ignore privacy concerns
(D) To sell user data

Correct Answer: A

Explanation: AI designers must safeguard user data privacy, obtain consent for data collection, and comply with privacy laws.

B. Less Important / Secondary Topics

26. Which IoT application uses sensors to monitor soil conditions and control irrigation?

(A) Smart Farming
(B) Smart Home
(C) Smart Grid
(D) Smart Transport

Correct Answer: A

Explanation: Smart farming uses various sensors that provide detailed information about soil condition to farmers.

27. What is the primary function of a Roomba robot?

(A) To cook food
(B) To clean floors autonomously
(C) To monitor health
(D) To drive cars

Correct Answer: B

Explanation: Roomba robot is a popular autonomous vacuum cleaner capable of picking dirt, dust, and hair.

28. Which type of AI is used to identify a person based on unique voice characteristics?

(A) Speech Recognition
(B) NLP
(C) Voice Recognition
(D) Computer Vision

Correct Answer: C

Explanation: Voice Recognition — this correctly answers the question.

29. What is the main difference between speech recognition and voice recognition?

(A) Speech = person; Voice = words
(B) Both are the same
(C) Speech = text; Voice = images
(D) Speech = words; Voice = person

Correct Answer: D

Explanation: Speech recognition converts speech to text (what is being said). Voice recognition identifies the speaker (who is speaking).

30. Which of the following is a privacy breach concern in AI?

(A) Collecting personal data without consent
(B) Improving customer service
(C) Enhancing data security
(D) Increasing energy efficiency

Correct Answer: A

Explanation: Privacy breaches are concerned with the violation of protection of personal data, such as collecting data without consent.

31. What is the responsibility of AI designers regarding transparency?

(A) To hide how AI works
(B) To document how AI systems work and make decisions
(C) To avoid explaining decisions
(D) To maximize profits

Correct Answer: B

Explanation: AI designers must ensure transparency by documenting how AI systems work and make decisions.

32. Which cloud deployment model is exclusively used by a single organization?

(A) Public Cloud
(B) Hybrid Cloud
(C) Private Cloud
(D) Community Cloud

Correct Answer: C

Explanation: A private cloud is a cloud computing environment exclusively used by a single organization or entity.

33. What is the primary purpose of cybersecurity?

(A) To increase internet speed
(B) To develop new software applications
(C) To create more social media platforms
(D) To protect computer systems, networks, and data

Correct Answer: D

Explanation: Cybersecurity is the practice of protecting computer systems, networks, and data from unauthorized access, cyberattacks, and malicious activities.

34. Which of the following is a legal online activity?

(A) Developing a new mobile app
(B) Hacking into a network to steal information
(C) Tricking people through phishing scams
(D) Deploying malware to disrupt systems

Correct Answer: A

Explanation: Developing a new mobile app is a legal online.

35. Why is cybersecurity essential in the digital era?

(A) It helps in faster data transmission
(B) It ensures that personal data is protected from malicious actors
(C) It decreases the cost of internet services
(D) It reduces the need for technical support

Correct Answer: B

Explanation: Cybersecurity is essential to protect personal data, financial records, and sensitive information from malicious actors.

36. Which technology enables devices to communicate with each other and with the consumer for real-time energy management?

(A) Blockchain
(B) Cloud Computing
(C) Smart Grid
(D) NLP

Correct Answer: C

Explanation: Smart grids use IoT devices that communicate with each other and the consumer for real-time energy management.

37. What is the primary purpose of a digital ledger in blockchain?

(A) To store images
(B) To process payments only
(C) To visualize data
(D) To record transactions securely

Correct Answer: D

Explanation: A blockchain is a digital ledger or database of transactions that continuously grows and is secure.

38. In IoT, what is the role of an analytics platform?

(A) To connect, organize, visualize, and analyze data
(B) To collect data
(C) To transmit data
(D) To store data

Correct Answer: A

Explanation: To connect, organize, visualize, and analyze data — this correctly answers the question.

39. Which of the following is an example of a wearable IoT device?

(A) Smart thermostat
(B) Fitness band
(C) Smart door lock
(D) Smart light bulb

Correct Answer: B

Explanation: Fitness bands are wearable IoT devices equipped with sensors for monitoring heart rate, steps, calories, etc.

40. What is the primary function of a Roomba robot?

(A) To cook food
(B) To monitor health
(C) To clean floors autonomously
(D) To drive cars

Correct Answer: C

Explanation: Roomba robot is a popular autonomous vacuum cleaner capable of picking dirt, dust, and hair.

41. Which type of AI is used to identify a person based on unique voice characteristics?

(A) Speech Recognition
(B) NLP
(C) Computer Vision
(D) Voice Recognition

Correct Answer: D

Explanation: Voice Recognition — this correctly answers the question.

42. What is the main difference between speech recognition and voice recognition?

(A) Speech = words; Voice = person
(B) Speech = person; Voice = words
(C) Both are the same
(D) Speech = text; Voice = images

Correct Answer: A

Explanation: Speech recognition converts speech to text (what is being said). Voice recognition identifies the speaker (who is speaking).

43. Which of the following is a privacy breach concern in AI?

(A) Improving customer service
(B) Collecting personal data without consent
(C) Enhancing data security
(D) Increasing energy efficiency

Correct Answer: B

Explanation: Privacy breaches are concerned with the violation of protection of personal data, such as collecting data without consent.

44. What is the responsibility of AI designers regarding transparency?

(A) To hide how AI works
(B) To avoid explaining decisions
(C) To document how AI systems work and make decisions
(D) To maximize profits

Correct Answer: C

Explanation: AI designers must ensure transparency by documenting how AI systems work and make decisions.

45. Which cloud deployment model is exclusively used by a single organization?

(A) Public Cloud

(B) Hybrid Cloud
(C) Community Cloud
(D) Private Cloud

Correct Answer: D

Explanation: A private cloud is a cloud computing environment exclusively used by a single organization or entity.

46. What is the primary purpose of cybersecurity?

(A) To protect computer systems, networks, and data
(B) To increase internet speed
(C) To develop new software applications
(D) To create more social media platforms

Correct Answer: A

Explanation: Cybersecurity is the practice of protecting computer systems, networks, and data from unauthorized access, cyberattacks, and malicious activities.

47. Which of the following is a legal online activity?

(A) Hacking into a network to steal information
(B) Developing a new mobile app
(C) Tricking people through phishing scams
(D) Deploying malware to disrupt systems

Correct Answer: B

Explanation: Developing a new mobile app is a legal online.

48. Why is cybersecurity essential in the digital era?

(A) It helps in faster data transmission
(B) It decreases the cost of internet services
(C) It ensures that personal data is protected from malicious actors
(D) It reduces the need for technical support

Correct Answer: C

Explanation: Cybersecurity is essential to protect personal data, financial records, and sensitive information from malicious actors.

49. Which of the following is a consequence of inequitable access to information?

(A) Equal opportunities for all
(B) Improved healthcare for everyone
(C) Increased job opportunities
(D) Widening social and economic inequality

Correct Answer: D

Explanation: Widening social and economic inequality — this correctly answers the question.

50. What is the primary purpose of the digital divide solutions?

(A) To ensure equitable access to technology for all
(B) To increase inequality
(C) To limit internet access
(D) To reduce digital literacy

Correct Answer: A

Explanation: To ensure equitable access to technology for all — this correctly answers the question.

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Computer Science Grade 10 — Chapter 6

Impacts of Computing

by Public Library

Independent practice MCQs from the supplied Class 10 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. What is technology addiction?

(A) Excessive and compulsive use of devices
(B) Occasional use of technology
(C) Using technology only for work
(D) Avoiding technology completely

Correct Answer: A

Explanation: Technology addiction, also known as digital or internet addiction, refers to the excessive and compulsive use of devices like smartphones, computers, video games, and social media.

2. Which of the following is a mental health challenge caused by technology addiction?

(A) Improved focus
(B) Depression and anxiety
(C) Better sleep
(D) Increased physical activity

Correct Answer: B

Explanation: Technology addiction can make feelings of depression and anxiety worse because of social comparison, cyberbullying, and online harassment.

3. What is cyberbullying?

(A) Using the internet to help others
(B) Sharing educational content online
(C) Using digital devices to hurt, harass, or intimidate others
(D) Playing online games

Correct Answer: C

Explanation: Cyberbullying is when someone uses the internet or digital devices to hurt, harass, or intimidate others.

4. Which of the following is a beneficial use of the internet?

(A) Cybercrime
(B) Online harassment
(C) Spreading misinformation
(D) Information and education

Correct Answer: D

Explanation: Information and education is a beneficial use of the internet, providing access to educational resources and knowledge.

5. What is spam?

(A) Unwanted junk email sent in bulk
(B) Important emails
(C) Educational newsletters
(D) Personal messages

Correct Answer: A

Explanation: Spam is unwanted junk email sent in bulk, which can be advertisement, marketing message, or even malware.

6. What is spyware?

(A) Software that helps you browse faster

(B) Software that secretly monitors and collects personal information
(C) Software that protects your device
(D) Software that creates documents

Correct Answer: B

Explanation: Spyware is software that spies on what you do on your device, takes your personal info, and sends it to unauthorized people.

7. What are cookies?

(A) Snacks for your computer
(B) Programs that speed up your computer
(C) Tiny files saved on your device to remember what you do online
(D) Hardware components

Correct Answer: C

Explanation: Cookies are tiny files saved on your device to remember what you do online; some are okay, but others collect information without asking.

8. What is the primary goal of cybersecurity?

(A) To increase internet speed
(B) To develop new software
(C) To create social media platforms
(D) To protect computer systems, networks, and data

Correct Answer: D

Explanation: Cybersecurity is the practice of protecting computer systems, networks, and data from unauthorized access, cyberattacks, and malicious activities.

9. Which of the following is a hardware method to protect devices?

(A) Biometric authentication
(B) Antivirus software
(C) Password management
(D) Data backup

Correct Answer: A

Explanation: Biometric authentication (fingerprint or facial recognition) is a hardware method that uses physical characteristics to verify identity.

10. What is a digital divide?

(A) A type of computer virus
(B) A gap between those with and without access to technology
(C) A software bug
(D) A network cable

Correct Answer: B

Explanation: The digital divide means some people or groups have less access to technology, like the internet, compared to others.

11. What is cloud computing?

(A) Storing data only on local devices
(B) A type of hardware
(C) Delivery of computing services over the internet
(D) A programming language

Correct Answer: C

Explanation: Cloud computing is the delivery of computing services such as servers, storage, database, networking, and software over the internet.

12. What is the primary purpose of a firewall?

(A) To speed up internet
(B) To store data
(C) To create documents

(D) To block unauthorized access to a network

Correct Answer: D

Explanation: A firewall acts as a barrier, blocking unwanted traffic from entering or leaving a network while allowing safe traffic to pass through.

13. What is the purpose of a data backup?

(A) To protect against data loss
(B) To delete files
(C) To increase internet speed
(D) To install software

Correct Answer: A

Explanation: Data backup is the practice of regularly saving copies of important data to prevent loss due to cyber threats or hardware failures.

14. What is a virtual private network (VPN)?

(A) A type of hardware
(B) A service that encrypts internet connections
(C) A programming language
(D) A database

Correct Answer: B

Explanation: A VPN encrypts your internet connection, making it difficult for cybercriminals to intercept your data.

15. What is the primary purpose of cybercrime laws?

(A) To promote internet speed
(B) To increase social media usage
(C) To stop illegal activities using computers and set punishments
(D) To develop new software

Correct Answer: C

Explanation: Cybercrime laws are rules made to stop illegal activities using computers or digital tools and set punishments for offenders.

16. Which of the following is a psychological effect of cyberbullying?

(A) Improved self-esteem
(B) Better academic performance
(C) Increased social activity
(D) Anxiety and depression

Correct Answer: D

Explanation: Anxiety and depression — this correctly answers the question.

17. What is the primary purpose of cybersecurity laws?

(A) To stop illegal activities using computers and set punishments
(B) To promote internet speed
(C) To increase social media usage
(D) To develop new software

Correct Answer: A

Explanation: Cybercrime laws define what cybercrimes are and set punishments for those who commit them.

18. Which of the following is an example of a phishing scam?

(A) A legitimate bank email
(B) A fake email pretending to be from a trustworthy source asking for personal info
(C) A newsletter subscription
(D) A software update notification

Correct Answer: B

Explanation: Phishing is a scam that tricks people into giving away personal information by pretending to be someone trustworthy.

19. What is a DDoS attack?

(A) Stealing personal information
(B) Sending spam emails
(C) Flooding a website with traffic to make it unusable
(D) Installing antivirus software

Correct Answer: C

Explanation: DDoS (Distributed Denial of Service) attacks flood websites with traffic to make them unusable.

20. Which hardware method uses physical characteristics to verify identity?

(A) Antivirus software
(B) Firewall
(C) VPN
(D) Biometric authentication

Correct Answer: D

Explanation: Biometric authentication uses physical characteristics such as fingerprints or facial recognition to verify identity.

21. What is the main purpose of a data backup?

(A) To protect against data loss
(B) To delete files
(C) To increase internet speed
(D) To install software

Correct Answer: A

Explanation: To protect against data loss — this correctly answers the question.

22. Which of the following is a dimension of the digital divide?

(A) Network Divide
(B) Access Divide
(C) Software Divide
(D) Hardware Divide

Correct Answer: B

Explanation: Access Divide — this correctly answers the question.

23. What is the main purpose of GDPR and CCPA?

(A) To increase internet speed
(B) To promote social media
(C) To regulate data privacy and protection
(D) To develop new hardware

Correct Answer: C

Explanation: GDPR and CCPA are laws that help people control their personal information and require companies to protect data more carefully.

24. Which of the following is a result of inequitable access to information?

(A) Equal opportunities for all
(B) Improved healthcare for everyone
(C) Increased job opportunities
(D) Widening social and economic inequality

Correct Answer: D

Explanation: Widening social and economic inequality — this correctly answers the question.

25. What is the difference between spam and spyware?

(A) Spam is unwanted email; spyware is monitoring software
(B) Spam is software; spyware is email
(C) Both are the same
(D) Spam is hardware; spyware is software

Correct Answer: A

Explanation: Spam is unwanted junk email sent in bulk. Spyware is software that secretly monitors and collects personal information.

B. Less Important / Secondary Topics

26. Explain the impact of cyberbullying on academic performance.

(A) Poor performance and lack of focus
(B) Improved grades
(C) Increased attendance
(D) Better concentration

Correct Answer: A

Explanation: Cyberbullying can make it hard for someone to focus on school or work, causing their performance to drop.

27. What are the two main types of cloud computing?

(A) Local and Remote
(B) Public and Private
(C) Wired and Wireless
(D) Hardware and Software

Correct Answer: B

Explanation: The two main types of cloud computing are public cloud and private cloud.

28. How does a VPN protect your online activities?

(A) By speeding up internet
(B) By storing data
(C) By encrypting internet connection and hiding IP address
(D) By creating documents

Correct Answer: C

Explanation: A VPN encrypts your internet connection, making it difficult for cybercriminals to intercept your data, and hides your IP address.

29. What is the digital divide and why is it important?

(A) A type of virus; affects computer speed
(B) A software bug; affects program performance
(C) A network cable; affects connectivity
(D) A gap in access to technology; affects education, employment, and healthcare

Correct Answer: D

Explanation: The digital divide means some people or groups have less access to technology, affecting education, employment, healthcare, and overall quality of life.

30. What is the primary purpose of cybersecurity?

(A) To protect computer systems, networks, and data
(B) To increase internet speed
(C) To develop new software applications
(D) To create more social media platforms

Correct Answer: A

Explanation: Cybersecurity is the practice of protecting computer systems, networks, and data from unauthorized access, cyberattacks, and malicious activities.

31. Which of the following is a legal online activity?

(A) Hacking into a network to steal information
(B) Developing a new mobile app
(C) Tricking people through phishing scams
(D) Deploying malware to disrupt systems

Correct Answer: B

Explanation: Developing a new mobile app is a legal online.

32. Why is cybersecurity essential in the digital era?

(A) It helps in faster data transmission
(B) It decreases the cost of internet services
(C) It ensures that personal data is protected from malicious actors
(D) It reduces the need for technical support

Correct Answer: C

Explanation: Cybersecurity is essential to protect personal data, financial records, and sensitive information from malicious actors.

33. What is the role of education in preventing cyberbullying?

(A) To ignore the problem
(B) To encourage bullying
(C) To blame the victims
(D) To promote digital literacy and raise awareness about consequences

Correct Answer: D

Explanation: To promote digital literacy and raise awareness about consequences — this correctly answers the question.

34. Which of the following is a psychological effect of cyberbullying?

(A) Anxiety and depression
(B) Improved self-esteem
(C) Better academic performance
(D) Increased social activity

Correct Answer: A

Explanation: Anxiety and depression — this correctly answers the question.

35. What is the primary purpose of a data backup strategy like the 3-2-1 rule?

(A) To delete files
(B) To ensure data is protected and recoverable
(C) To share data publicly
(D) To slow down the system

Correct Answer: B

Explanation: The 3-2-1 rule (3 copies, 2 different media, 1 offsite) ensures data is protected and recoverable in case of disaster.

36. Which of the following is an example of a social engineering attack?

(A) Installing antivirus
(B) Using a firewall
(C) Phishing emails that trick users into revealing information
(D) Backing up data

Correct Answer: C

Explanation: Phishing is a social engineering attack that tricks users into revealing personal information by pretending to be trustworthy.

37. What is the primary purpose of a Virtual Private Network (VPN)?

(A) To speed up internet
(B) To store files
(C) To create documents
(D) To encrypt internet connection and protect data

Correct Answer: D

Explanation: A VPN encrypts your internet connection, making it difficult for cybercriminals to intercept your data.

38. Which of the following is a consequence of inequitable access to information?

(A) Widening social and economic inequality

(B) Equal opportunities
(C) Improved healthcare for all
(D) Increased job opportunities

Correct Answer: A

Explanation: Widening social and economic inequality — this correctly answers the question.

39. In cloud computing, what does "scalability" mean?

(A) The ability to shrink hardware
(B) The ability to scale up or down based on needs
(C) The ability to delete data
(D) The ability to increase costs

Correct Answer: B

Explanation: The ability to scale up or down based on needs — this correctly answers the question.

40. What is the primary risk of using public Wi-Fi without a VPN?

(A) Faster internet
(B) Better security
(C) Data interception by cybercriminals
(D) Free internet access

Correct Answer: C

Explanation: Using public Wi-Fi without a VPN risks data interception by cybercriminals who can access unencrypted data.

41. Which of the following is a legal consequence of cyberbullying?

(A) No consequences
(B) Reward for the bully
(C) Ignoring the incident
(D) Legal action under cybercrime laws

Correct Answer: D

Explanation: Cyberbullying is a cybercrime and can lead to legal action under cybercrime laws.

42. What is the main purpose of a data backup strategy like the 3-2-1 rule?

(A) To ensure data is protected and recoverable
(B) To delete files
(C) To share data publicly
(D) To slow down the system

Correct Answer: A

Explanation: The 3-2-1 rule (3 copies, 2 different media, 1 offsite) ensures data is protected and recoverable in case of disaster.

43. What is the primary goal of the digital divide solutions?

(A) To increase inequality
(B) To ensure equitable access to technology for all
(C) To limit internet access
(D) To reduce digital literacy

Correct Answer: B

Explanation: To ensure equitable access to technology for all — this correctly answers the question.

44. Which of the following is a hardware method for protecting devices?

(A) Antivirus software
(B) Password manager
(C) Biometric authentication
(D) VPN

Correct Answer: C

Explanation: Biometric authentication (fingerprint or facial recognition) is a hardware method that uses physical characteristics to verify identity.

45. What is the main purpose of multi-factor authentication (MFA)?

(A) To make passwords shorter
(B) To share passwords
(C) To avoid passwords
(D) To add an extra layer of security

Correct Answer: D

Explanation: To add an extra layer of security — this correctly answers the question.

46. How does spyware affect a user's privacy and security?

(A) It secretly monitors and collects personal information
(B) It speeds up the device
(C) It protects the device
(D) It creates documents

Correct Answer: A

Explanation: It secretly monitors and collects personal information — this correctly answers the question.

47. Explain how a firewall protects a device or network.

(A) By speeding up internet
(B) By blocking unwanted traffic from entering or leaving a network
(C) By storing data
(D) By creating documents

Correct Answer: B

Explanation: A firewall acts as a barrier, blocking unwanted traffic from entering or leaving a network while allowing safe traffic to pass through.

48. What are the key aspects of behavioral segmentation?

(A) Age, gender, income
(B) Location, region, urban/rural
(C) Purchase frequency, brand loyalty, usage occasions, response to market stimuli
(D) Education, occupation

Correct Answer: C

Explanation: Purchase frequency, brand loyalty, usage occasions, response to market stimuli — this correctly answers the question.

49. Why is it important to use strong, unique passwords for each account?

(A) To make passwords easier to remember
(B) To share passwords easily
(C) To avoid using MFA
(D) To prevent multiple accounts from being hacked if one is compromised

Correct Answer: D

Explanation: Strong, unique passwords prevent multiple accounts from being hacked if one account is compromised.

50. Describe the role of education in preventing cyberbullying.

(A) To promote digital literacy and raise awareness about consequences
(B) To ignore the problem
(C) To encourage bullying
(D) To blame the victims

Correct Answer: A

Explanation: “To promote digital literacy and raise awareness about consequences” is correct: it matches the idea asked in the question (“Describe the role of education in preventing cyberbullying”), while the other choices do not.

Public Library · FBISE / NBF

Computer Science Grade 10 — Chapter 7

Digital Literacy

by Public Library

Independent practice MCQs from the supplied Class 10 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. What is digital literacy?

(A) The ability to effectively use digital technologies to access, evaluate, create, and communicate information
(B) The ability to read and write
(C) The ability to repair computers
(D) The ability to use social media only

Correct Answer: A

Explanation: Digital literacy is the ability to create information in a digital environment and effectively use digital technologies to access information.

2. What is information collection?

(A) The process of deleting data
(B) The process of gathering data and information from various sources
(C) The process of hiding data
(D) The process of selling data

Correct Answer: B

Explanation: Information collection is the process of gathering data and information from various sources to be used for communication, decision-making, learning, or other purposes.

3. Which of the following is a traditional source of information?

(A) Search engines
(B) Social media
(C) Books
(D) Websites

Correct Answer: C

Explanation: Books are traditional sources of information, along with newspapers, magazines, journals, encyclopedias, and libraries.

4. Which of the following is a digital source of information?

(A) Newspapers
(B) Journals
(C) Libraries
(D) Search engines

Correct Answer: D

Explanation: Search engines are digital sources of information, along with websites, social media, online databases, and e-books.

5. When was Facebook introduced?

(A) February 4, 2004
(B) March 21, 2006
(C) October 6, 2010
(D) January 1, 2005

Correct Answer: A

Explanation: February 4, 2004 — this correctly answers the question.

6. When was YouTube introduced?

(A) 2004
(B) 2005
(C) 2006
(D) 2010

Correct Answer: B

Explanation: 2005 — this correctly answers the question.

7. What is the first step in the information collection process?

(A) Collect data
(B) Organize information
(C) Identify the need
(D) Use information

Correct Answer: C

Explanation: The first step in the information collection process is to identify the need — what information do you need?.

8. Which of the following is NOT a criterion for evaluating information?

(A) Authority
(B) Accuracy
(C) Currency
(D) Popularity

Correct Answer: D

Explanation: The criteria for evaluating information include authority, accuracy, objectivity, currency, and coverage. Popularity is not a criterion.

9. What is the primary role of digital literacy in communication?

(A) To effectively communicate information to the target audience
(B) To complicate information
(C) To hide information
(D) To delete information

Correct Answer: A

Explanation: The role of digital literacy is how beautifully and effectively we can communicate information to our target audience.

10. Which of the following is a type of information to be communicated?

(A) Text
(B) All of the above
(C) Images
(D) Audio

Correct Answer: B

Explanation: All of the above — this correctly answers the question.

11. When was Twitter introduced?

(A) February 4, 2004
(B) October 6, 2010
(C) March 21, 2006
(D) January 1, 2005

Correct Answer: C

Explanation: March 21, 2006 — this correctly answers the question.

12. When was Instagram introduced?

(A) February 4, 2004
(B) March 21, 2006
(C) January 1, 2005
(D) October 6, 2010

Correct Answer: D

Explanation: October 6, 2010 — this correctly answers the question.

13. What is the primary purpose of organizing information after collecting it?

(A) To arrange it logically for use
(B) To delete unnecessary data
(C) To hide it from others
(D) To sell it

Correct Answer: A

Explanation: Organizing information involves arranging it logically for effective use.

14. Why is it important to cite sources properly?

(A) To make the document longer
(B) To avoid plagiarism and give credit
(C) To increase word count
(D) To confuse the reader

Correct Answer: B

Explanation: Citing sources properly is important to avoid plagiarism and give credit to the original authors.

15. Which of the following is a type of multimedia information?

(A) A text document only
(B) A single image
(C) A combination of text, image, audio, and video
(D) A podcast only

Correct Answer: C

Explanation: Multimedia information is a combination of text, image, audio, and video.

16. What is the difference between primary and secondary sources of information?

(A) Primary sources are secondary; secondary sources are primary
(B) Both are the same
(C) Primary sources are digital; secondary sources are traditional
(D) Primary sources are original data; secondary sources analyze primary sources

Correct Answer: D

Explanation: Primary sources are original data (interviews, surveys, experiments). Secondary sources analyze primary sources (books, articles).

17. Explain the "authority" criterion for evaluating information.

(A) Who the author is and whether they are qualified
(B) How much the information costs
(C) How popular the information is
(D) How long the information is

Correct Answer: A

Explanation: Authority refers to who the author is and whether they are qualified to provide the information.

18. What are the strengths of journals as an information source?

(A) They are always free
(B) They are peer-reviewed and accurate
(C) They are always outdated
(D) They are never reliable

Correct Answer: B

Explanation: Journals are peer-reviewed and accurate, making them reliable sources for academic and research information.

19. What are the weaknesses of books as an information source?

(A) They are always accurate
(B) They are always free

(C) They may be outdated
(D) They are never reliable

Correct Answer: C

Explanation: They may be outdated — this correctly answers the question.

20. Why should you use a mix of sources for research?

(A) To make the research longer
(B) To confuse the reader
(C) To avoid citing sources
(D) To get a balanced view and verify information

Correct Answer: D

Explanation: To get a balanced view and verify information — this correctly answers the question.

21. What is the "currency" criterion for evaluating information?

(A) Whether the information is up to date
(B) How much the information costs
(C) How popular the information is
(D) How long the information is

Correct Answer: A

Explanation: Currency refers to whether the information is up to date and relevant.

22. Which of the following is a challenge of information collection in the digital age?

(A) Too little information
(B) Information overload and misinformation
(C) No access to digital sources
(D) Too few sources available

Correct Answer: B

Explanation: Information overload and misinformation — this correctly answers the question.

23. What is the main advantage of digital sources over traditional sources?

(A) They are always more accurate
(B) They are always free
(C) They are up-to-date and easily accessible
(D) They never contain errors

Correct Answer: C

Explanation: Digital sources are up-to-date and easily accessible, which is their main advantage.

24. Which of the following is a weakness of social media as an information source?

(A) It is slow
(B) It is expensive
(C) It is difficult to access
(D) It is often unverified

Correct Answer: D

Explanation: Social media is often unverified because anyone can post without fact-checking, and misinformation spreads quickly.

25. What is the main purpose of evaluating information?

(A) To check if it is accurate, relevant, and reliable
(B) To delete unnecessary data
(C) To hide it from others
(D) To sell it

Correct Answer: A

Explanation: The purpose of evaluating information is to check if it is accurate, relevant, and reliable before using it.

B. Less Important / Secondary Topics

26. What is the role of digital literacy in daily life?

(A) It helps in accessing, evaluating, and communicating information effectively
(B) It is only needed for school
(C) It is only for technology experts
(D) It is not important

Correct Answer: A

Explanation: It helps in accessing, evaluating, and communicating information effectively — this correctly answers the question.

27. What is the first step in the information collection process?

(A) Collect data
(B) Identify the need
(C) Organize information
(D) Use information

Correct Answer: B

Explanation: The first step in the information collection process is to identify the need.

28. Which of the following is a type of information to be communicated?

(A) Text
(B) Images
(C) All of the above
(D) Audio

Correct Answer: C

Explanation: All of the above — this correctly answers the question.

29. What is the purpose of a pilot test in questionnaire design?

(A) To deploy the questionnaire immediately
(B) To skip the design phase
(C) To analyze data
(D) To test the questionnaire with a small group before full deployment

Correct Answer: D

Explanation: A pilot test is used to check the questionnaire for clarity and understanding with a small group before full deployment.

30. What is the difference between demographic and behavioral segmentation?

(A) Demographic is based on age, gender, income; behavioral is based on buying habits
(B) Demographic is based on buying habits; behavioral is based on age
(C) Both are the same
(D) Demographic is for products; behavioral is for services

Correct Answer: A

Explanation: Demographic segmentation is based on age, gender, income, and education. Behavioral segmentation is based on buying habits, brand loyalty, usage rate, and response to market stimuli.

31. What is the primary role of digital literacy in communication?

(A) To complicate information
(B) To effectively communicate information to the target audience
(C) To hide information
(D) To delete information

Correct Answer: B

Explanation: The role of digital literacy is how beautifully and effectively we can communicate information to our target audience.

32. Which of the following is a type of information to be communicated?

(A) Text
(B) Images

(C) All of the above
(D) Audio

Correct Answer: C

Explanation: All of the above — this correctly answers the question.

33. What is the primary purpose of organizing information after collecting it?

(A) To delete unnecessary data
(B) To hide it from others
(C) To sell it
(D) To arrange it logically for use

Correct Answer: D

Explanation: Organizing information involves arranging it logically for effective use.

34. Why is it important to cite sources properly?

(A) To avoid plagiarism and give credit
(B) To make the document longer
(C) To increase word count
(D) To confuse the reader

Correct Answer: A

Explanation: Citing sources properly is important to avoid plagiarism and give credit to the original authors.

35. What is the first step in the information collection process?

(A) Collect data
(B) Identify the need
(C) Organize information
(D) Use information

Correct Answer: B

Explanation: The first step in the information collection process is to identify the need.

36. Which of the following best describes the relationship between digital literacy and information collection?

(A) They are unrelated
(B) Information collection replaces digital literacy
(C) Digital literacy enables effective information collection
(D) Digital literacy only applies to social media

Correct Answer: C

Explanation: Digital literacy enables effective information collection — this correctly answers the question.

37. A student finds a blog post claiming a scientific fact but it has no author name. Which evaluation criterion is violated?

(A) Currency
(B) Coverage
(C) Objectivity
(D) Authority

Correct Answer: D

Explanation: Authority requires the author to be identifiable and qualified. A blog post with no author name violates this criterion.

38. Which of the following is the best example of a multimedia information source?

(A) A video documentary with narration and graphics
(B) A printed newspaper
(C) A handwritten letter
(D) A single photograph

Correct Answer: A

Explanation: A video documentary with narration and graphics combines text, image, audio, and video, making it a multimedia information source.

39. Why is it important to check the "currency" of information when researching fast-changing topics like technology?

(A) Because old information is always wrong
(B) Because outdated information may be irrelevant or inaccurate
(C) Because new information is always free
(D) Because currency affects the price

Correct Answer: B

Explanation: Currency is important because outdated information may be irrelevant or inaccurate, especially in fast-changing fields.

40. A researcher collects data from 10 different sources and finds conflicting information. What should they do?

(A) Use only one source
(B) Ignore the conflict
(C) Evaluate each source for authority, accuracy, and objectivity
(D) Delete all sources

Correct Answer: C

Explanation: When sources conflict, the researcher should evaluate each source for authority, accuracy, and objectivity to determine which is most reliable.

41. Which of the following is a challenge of information collection in the digital age?

(A) Too little information
(B) No access to digital sources
(C) Too few sources available
(D) Information overload and misinformation

Correct Answer: D

Explanation: Information overload and misinformation — this correctly answers the question.

42. Which of the following is a tertiary source of information?

(A) An encyclopedia
(B) A research article
(C) A survey
(D) An interview

Correct Answer: A

Explanation: Tertiary sources are summaries of primary and secondary sources, such as encyclopedias and textbooks.

43. A company wants to communicate its annual report to stakeholders. Which type of information would be most effective?

(A) Text only
(B) Multimedia (text, data, charts, and video)
(C) Images only
(D) Audio only

Correct Answer: B

Explanation: Multimedia is most effective for communicating complex information like annual reports because it combines text, data, charts, and video.

44. When evaluating information, what does "objectivity" refer to?

(A) How much the information costs
(B) How popular the information is
(C) Whether the information is free from bias
(D) How long the information is

Correct Answer: C

Explanation: Objectivity refers to whether the information is free from bias and presents a balanced view.

45. Why is digital literacy important for daily life?

(A) It is only needed for school
(B) It is only for technology experts
(C) It is not important
(D) It helps in accessing, evaluating, and communicating information effectively

Correct Answer: D

Explanation: It helps in accessing, evaluating, and communicating information effectively — this correctly answers the question.

46. What is the difference between a primary source and a secondary source? Give one example of each.

(A) Primary: original data (interview); Secondary: analysis of primary (research article)
(B) Primary: analysis (book); Secondary: original data (survey)
(C) Both are the same
(D) Primary: digital; Secondary: traditional

Correct Answer: A

Explanation: Primary sources are original data (interviews, surveys, experiments). Secondary sources analyze primary sources (books, articles).

47. Explain why social media is often considered an unreliable source of information.

(A) It is too slow
(B) It is often unverified because anyone can post without fact-checking
(C) It is too expensive
(D) It is difficult to access

Correct Answer: B

Explanation: Social media is often unverified because anyone can post without fact-checking, and misinformation spreads quickly.

48. What are the key criteria for evaluating information? Name any four.

(A) Popularity, cost, length, color
(B) Speed, size, weight, price
(C) Authority, accuracy, objectivity, currency
(D) Author, publisher, date, price

Correct Answer: C

Explanation: The key criteria for evaluating information include authority, accuracy, objectivity, currency, and coverage.

49. Why is it important to organize information after collecting it?

(A) To delete unnecessary data
(B) To hide it from others
(C) To sell it
(D) To arrange it logically for effective use

Correct Answer: D

Explanation: To arrange it logically for effective use — this correctly answers the question.

50. How does digital literacy help in effective communication?

(A) By helping in accessing, evaluating, creating, and communicating information effectively to target audiences
(B) By complicating information
(C) By hiding information
(D) By deleting information

Correct Answer: A

Explanation: By helping in accessing, evaluating, creating, and communicating information effectively to target audiences — this correctly answers the question.

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Computer Science Grade 10 — Chapter 8

Entrepreneurship in the Digital Age

by Public Library

Independent practice MCQs from the supplied Class 10 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. What is the primary focus of qualitative research?

(A) Understanding human behavior, experiences, and opinions
(B) Measuring numerical data
(C) Testing hypotheses with statistics
(D) Conducting experiments

Correct Answer: A

Explanation: Understanding human behavior, experiences, and opinions — this correctly answers the question.

2. What type of data does quantitative research focus on?

(A) Text and audio
(B) Numerical data
(C) Opinions and experiences
(D) Interviews and observations

Correct Answer: B

Explanation: Numerical data — this correctly answers the question.

3. Which of the following is a method used in qualitative research?

(A) Surveys with closed-ended questions
(B) Experiments
(C) Interviews
(D) Polls

Correct Answer: C

Explanation: Interviews are a method used in qualitative research, along with focus groups, observation, and open-ended surveys.

4. What is a questionnaire?

(A) A type of interview
(B) A data visualization tool
(C) A statistical method
(D) A structured set of questions designed to collect information

Correct Answer: D

Explanation: A questionnaire is a structured set of questions designed to collect information from respondents.

5. Which question type allows free-form answers?

(A) Open-ended
(B) Closed-ended
(C) Multiple-choice
(D) Dichotomous

Correct Answer: A

Explanation: Open-ended — this correctly answers the question.

6. What is market validation?

(A) The process of creating a product
(B) The process of determining if there is genuine demand for a product
(C) The process of marketing a product
(D) The process of selling a product

Correct Answer: B

Explanation: Market validation is the process of determining whether there is a genuine demand for a product or service in a specific market before launching it.

7. Which of the following is a method of market validation?

(A) Customer interviews
(B) Surveys
(C) All of the above
(D) Landing page tests

Correct Answer: C

Explanation: All of the above — this correctly answers the question.

8. What is a customer profile?

(A) A list of products sold
(B) A financial report
(C) A marketing plan
(D) A detailed description of a business's ideal customer

Correct Answer: D

Explanation: A customer profile (buyer persona) is a detailed description of a business's ideal customer based on market research and real data.

9. What is the primary purpose of a business pitch?

(A) To present a business idea persuasively
(B) To entertain the audience
(C) To create a product
(D) To conduct research

Correct Answer: A

Explanation: Business pitching is the act of presenting a business idea, product, or service to an audience in a concise and compelling way.

10. Which of the following is a key component of a business pitch?

(A) Problem
(B) All of the above
(C) Solution
(D) Market

Correct Answer: B

Explanation: All of the above — this correctly answers the question.

11. Which research method is best for exploring a new topic in depth?

(A) Quantitative Research
(B) Surveys
(C) Qualitative Research
(D) Experiments

Correct Answer: C

Explanation: Qualitative research is exploratory and provides rich, detailed data about human behavior, experiences, and opinions.

12. What type of question is "Rate our service from 1 to 10"?

(A) Open-ended
(B) Closed-ended
(C) Dichotomous
(D) Rating scale

Correct Answer: D

Explanation: A rating scale question asks respondents to rate something on a numerical scale, such as 1 to 10.

13. What is the primary goal of market validation?

(A) To determine if there is genuine demand
(B) To create a product
(C) To market a product
(D) To sell a product

Correct Answer: A

Explanation: Market validation determines whether there is genuine demand for a product or service before launching it.

14. Which market validation method involves creating a simple webpage to measure interest?

(A) Customer Interviews
(B) Landing Page Tests
(C) Surveys
(D) Prototype Testing

Correct Answer: B

Explanation: Landing Page Tests — this correctly answers the question.

15. Which of the following is a key aspect of behavioral segmentation?

(A) Age
(B) Gender
(C) Purchase frequency
(D) Location

Correct Answer: C

Explanation: Purchase frequency — this correctly answers the question.

16. What is the purpose of a customer profile?

(A) To describe the product
(B) To describe the competition
(C) To describe the market
(D) To describe the ideal customer

Correct Answer: D

Explanation: A customer profile is a detailed description of a business's ideal customer based on market research and real data.

17. Which component of a business pitch explains how you will make money?

(A) Business Model
(B) Problem
(C) Solution
(D) Team

Correct Answer: A

Explanation: Business Model — this correctly answers the question.

18. What is the "Ask" component of a business pitch?

(A) The problem you are solving
(B) What you need (funding, partnership)
(C) Your product or service
(D) Your team

Correct Answer: B

Explanation: The "Ask" component states what you need, such as funding or partnership.

19. Explain the difference between qualitative and quantitative research in terms of data type.

(A) Qualitative uses numerical data; quantitative uses non-numerical
(B) Both use the same data type
(C) Qualitative uses non-numerical data; quantitative uses numerical
(D) Qualitative uses images; quantitative uses text

Correct Answer: C

Explanation: Qualitative research uses non-numerical data (text, audio, video), while quantitative research uses numerical data (numbers, statistics).

20. What is the purpose of a pilot test in questionnaire design?

(A) To deploy the questionnaire immediately
(B) To skip the design phase
(C) To analyze data
(D) To test the questionnaire with a small group before full deployment

Correct Answer: D

Explanation: A pilot test is used to check the questionnaire for clarity and understanding with a small group before full deployment.

21. Describe any two methods of market validation.

(A) Customer interviews and surveys
(B) Customer interviews and cooking
(C) Surveys and sleeping
(D) Landing page tests and ignoring

Correct Answer: A

Explanation: Customer interviews and surveys are two methods of market validation used to gather feedback and measure demand.

22. What is the difference between demographic and behavioral segmentation?

(A) Demographic is based on buying habits; behavioral is based on age
(B) Demographic is based on age, gender, income; behavioral is based on buying habits
(C) Both are the same
(D) Demographic is for products; behavioral is for services

Correct Answer: B

Explanation: Demographic segmentation is based on age, gender, income, and education. Behavioral segmentation is based on buying habits, brand loyalty, usage rate, and response to market stimuli.

23. Why is market validation important before launching a product?

(A) To waste time
(B) To ignore customer needs
(C) To reduce risk, save money, and attract investors
(D) To avoid research

Correct Answer: C

Explanation: Market validation is important because it reduces risk, saves money, builds confidence, attracts investors, and guides development.

24. Explain the different question types used in questionnaire design with examples.

(A) Only open-ended
(B) Only closed-ended
(C) Only multiple-choice
(D) Closed-ended, open-ended, multiple-choice, rating, Likert, ranking, dichotomous, demographic

Correct Answer: D

Explanation: "Closed-ended, open-ended, multiple-choice, rating, Likert, ranking, dichotomous, demographic" is correct: it matches the idea asked in the question ("Explain the different question types used in questionnaire design with examples"), while the other choices do not.

25. Describe the steps involved in market validation.

(A) Define hypothesis, identify target audience, choose methods, collect data, analyze, refine, decide
(B) Skip research, launch product
(C) Ignore feedback, proceed
(D) Ask friends only

Correct Answer: A

Explanation: "Define hypothesis, identify target audience, choose methods, collect data, analyze, refine, decide" is correct: it matches the idea asked in the question ("Describe the steps involved in market validation"), while the other choices do not.

B. Less Important / Secondary Topics

26. A company wants to understand why customers are leaving their service. Which research method should they use and why?

(A) Qualitative Research (interviews/focus groups) to understand reasons
(B) Quantitative Research (surveys) to measure
(C) Experiments
(D) Ignoring the issue

Correct Answer: A

Explanation: Qualitative research provides rich, detailed insights into customer experiences and pain points, helping understand why they are leaving.

27. A startup wants to measure the demand for its new app before building it. Which market validation methods should they use and why?

(A) Ignoring the market
(B) Landing Page Tests and Pre-Orders to measure interest and willingness to pay
(C) Building the app immediately
(D) Asking friends only

Correct Answer: B

Explanation: Landing page tests and pre-orders are low-cost and quick methods to measure interest and willingness to pay before investing in development.

28. Explain the process of creating customer profiles using research.

(A) Skip research
(B) Guess the profiles
(C) Conduct research (primary and secondary), analyze data, create profiles, use profiles
(D) Use only one source

Correct Answer: C

Explanation: Creating customer profiles involves conducting research, analyzing data to identify patterns, creating detailed profiles for each segment, and using them for marketing, product development, and strategy.

29. Describe the components of a business pitch with an example.

(A) Only Problem and Solution
(B) Only Market and Team
(C) Only Ask and Traction
(D) Problem, Solution, Market, Business Model, Traction, Team, Ask

Correct Answer: D

Explanation: "Problem, Solution, Market, Business Model, Traction, Team, Ask" is correct: it matches the idea asked in the question ("Describe the components of a business pitch with an example"), while the other choices do not.

30. What are the key components of a customer profile?

(A) Demographic, geographic, psychographic, behavioral, needs, goals
(B) Only demographic
(C) Only geographic
(D) Only behavioral

Correct Answer: A

Explanation: Demographic, geographic, psychographic, behavioral, needs, goals — this correctly answers the question.

31. Which research method is best for understanding why customers prefer a particular brand?

(A) Quantitative Research (surveys)
(B) Qualitative Research (interviews/focus groups)

(C) Experiments
(D) Ignoring the issue

Correct Answer: B

Explanation: Qualitative Research (interviews/focus groups) — this correctly answers the question.

32. Why is storytelling important in a business pitch?

(A) To make the pitch longer
(B) To confuse the audience
(C) To create an emotional connection with the audience
(D) To hide the problem

Correct Answer: C

Explanation: Storytelling in a pitch creates an emotional connection with the audience, making the problem and solution more memorable and persuasive.

33. Which of the following is a challenge of market validation?

(A) Too many customers
(B) Too much funding
(C) Perfect market conditions
(D) People may say they will buy but not actually buy

Correct Answer: D

Explanation: A challenge of market validation is that people may say they will buy but not actually buy, so real evidence is needed.

34. Which research method is best for measuring customer satisfaction?

(A) Quantitative Research (surveys with rating scales)
(B) Qualitative Research
(C) Experiments
(D) Ignoring the issue

Correct Answer: A

Explanation: Quantitative research with surveys and rating scales is best for measuring customer satisfaction numerically and generalizing results.

35. What is the primary purpose of a business pitch?

(A) To entertain the audience
(B) To present a business idea persuasively
(C) To create a product
(D) To conduct research

Correct Answer: B

Explanation: Business pitching is the act of presenting a business idea, product, or service to an audience in a concise and compelling way.

36. A researcher wants to understand the experiences of remote workers. Which research approach is most suitable?

(A) Quantitative Research
(B) Survey with closed-ended questions
(C) Qualitative Research
(D) Experiment

Correct Answer: C

Explanation: Qualitative Research — this correctly answers the question.

37. A company wants to measure which advertisement generates more sales. Which research approach is most suitable?

(A) Qualitative Research
(B) Interviews
(C) Focus groups
(D) Quantitative Research

Correct Answer: D

Explanation: Quantitative research with surveys, experiments, or sales data is sui.

38. Which of the following is a double-barreled question in a questionnaire?

(A) "Do you like our product and service?"
(B) "How often do you exercise?"
(C) "What is your age?"
(D) "Which color do you prefer?"

Correct Answer: A

Explanation: A double-barreled question asks two questions in one (product AND service), which can confuse respondents.

39. A startup wants to measure willingness to pay before full product development. Which market validation method is best?

(A) Competitor Analysis
(B) Pre-Orders/Crowdfunding
(C) Prototype Testing
(D) MVP

Correct Answer: B

Explanation: Pre-Orders/Crowdfunding — this correctly answers the question.

40. Which of the following is a key aspect of behavioral segmentation that helps design targeted marketing?

(A) Age
(B) Gender
(C) Response to market stimuli
(D) Location

Correct Answer: C

Explanation: Response to market stimuli (e.g., coupon usage) is a behavioral aspect that helps design targeted marketing strategies.

41. A business pitch that clearly identifies a problem and presents a compelling solution is most likely to:

(A) Bore the audience
(B) Confuse investors
(C) Fail
(D) Secure funding and support

Correct Answer: D

Explanation: A business pitch that clearly identifies a problem and presents a compelling solution is most likely to Secure funding and support.

42. Which component of a business pitch shows evidence of progress?

(A) Traction
(B) Problem
(C) Solution
(D) Team

Correct Answer: A

Explanation: Traction shows evidence of progress, such as users, revenue, or partnerships.

43. What is the primary purpose of conducting a pilot test in questionnaire design?

(A) To deploy the questionnaire immediately
(B) To test the questionnaire with a small group before full deployment
(C) To skip the design phase
(D) To analyze data

Correct Answer: B

Explanation: A pilot test checks the questionnaire for clarity and understanding with a small group before full deployment.

44. Which of the following is a challenge of market validation?

(A) Too many customers
(B) Too much funding
(C) People may say they will buy but not actually buy
(D) Perfect market conditions

Correct Answer: C

Explanation: A challenge of market validation is that people may say they will buy but not actually buy, so real evidence is needed.

45. Which research method is best for understanding why customers leave a brand?

(A) Quantitative Research
(B) Surveys with closed-ended questions
(C) Polls
(D) Qualitative Research

Correct Answer: D

Explanation: Qualitative Research — this correctly answers the question.

46. Explain why qualitative research is important for understanding customer needs.

(A) It provides rich, detailed data about customer experiences, opinions, and motivations
(B) It provides numerical data
(C) It is faster than quantitative
(D) It is cheaper

Correct Answer: A

Explanation: "It provides rich, detailed data about customer experiences, opinions, and motivations" is correct: it matches the idea asked in the question ("Explain why qualitative research is important for understanding customer needs"), while the other choices do not.

47. What are the key aspects of behavioral segmentation?

(A) Age, gender, income
(B) Purchase frequency, brand loyalty, usage occasions, response to market stimuli
(C) Location, region
(D) Education, occupation

Correct Answer: B

Explanation: Purchase frequency, brand loyalty, usage occasions, response to market stimuli — this correctly answers the question.

48. Describe the process of market validation with any three methods.

(A) Skip research, launch product
(B) Ignore feedback, proceed
(C) Define hypothesis, identify target audience, choose methods, collect data, analyze, refine, decide. Methods: interviews, surveys, landing pages
(D) Ask friends only

Correct Answer: C

Explanation: "Define hypothesis, identify target audience, choose methods, collect data, analyze, refine, decide. Methods: interviews, surveys, landing pages" is correct: it matches the idea asked in the question ("Describe the process of market validation with any three methods"), while the other choices do not.

49. What are the key components of a customer profile?

(A) Only demographic
(B) Only geographic
(C) Only behavioral
(D) Demographic, geographic, psychographic, behavioral, needs, goals

Correct Answer: D

Explanation: Demographic, geographic, psychographic, behavioral, needs, goals — this correctly answers the question.

50. Why is storytelling important in a business pitch?

(A) To create an emotional connection with the audience
(B) To make the pitch longer
(C) To confuse the audience
(D) To hide the problem

Correct Answer: A

Explanation: Storytelling in a pitch creates an emotional connection with the audience, making the problem and solution more memorable and persuasive.