

Question 1: A small robot must move forward 5 steps, then turn right, and repeat. Which programming construct is best to repeat those instructions?

- a) Condition
- b) Loop
- c) Variable
- d) Comment

Question 2: Which flowchart symbol shows a decision?

- a) Rectangle
- b) Diamond
- c) Oval
- d) Parallelogram

Question 3: A smart lamp turns on when the room is dark. The lamp uses a sensor reading and runs `if light < 200 then ON else OFF`. The number 200 is an example of a:

- a) Loop count
- b) Threshold/condition value
- c) Variable name
- d) Output device

Question 4: In programming, which data type would the best hold a true/false answer?

- a) Integer
- b) String
- c) Boolean
- d) Float

Question 5: A teacher wants to explain an algorithm to classmates. Which of these is an algorithm?

- a) A list of instructions to make a sandwich step-by-step
- b) A story about a sandwich
- c) A picture of a sandwich only
- d) A song with no steps

Question 6: Which is a correct reason to use functions (named blocks) in programming?

- a) To repeat code by calling the function many times (reuse)
- b) To make the program run only once
- c) To hide errors forever
- d) To store batteries

Question 7: A dataset for recognizing cats contains only pictures of white cats. What risk does this pose when teaching a computer to recognize cats?

- a) Model may be biased and fail on black/brown cats (poor generalization)
- b) Model becomes faster automatically
- c) It will recognize cars instead of cats
- d) The dataset will work for every species

Question 8: Which of these is a safe password practice?

- a) Use “password123” everywhere
- b) Use a long password with letters, numbers, and symbols and don’t share it
- c) Write the password on a sticky note stuck to your monitor
- d) Use your pet’s name only

Question 9: A small office keeps student records in a table with columns: Roll No, Name, Grade. Which column is best to use as a primary key (unique identifier)?

- a) Name
- b) Grade
- c) Roll No
- d) Classroom colour

Question 10: In a database, a record is:

- a) A row that contains all fields for one item
- b) A software bug only
- c) A pie chart
- d) A column header

Question 11: A smart irrigation IoT system measures soil moisture and turns on water when dry. The device that senses moisture is called:

- a) Actuator
- b) Sensor
- c) Router
- d) Power bank

Question 12: Which of the following is an example of an actuator in IoT?

- a) A temperature sensor that reads °C
- b) A buzzer that rings when too hot
- c) A database table
- d) A CSV file

Question 13: A child receives an email asking for their password to “confirm account.” This is likely:

- a) A phishing attempt (scam)
- b) A safe and normal request
- c) A system update requiring password in plain text always
- d) A weather forecast

Question 14: What does the programming term variable mean?

- a) A named storage box that holds a value which can change
- b) A type of robot motor
- c) A loop with no end
- d) A drawing tool

Question 15: A flowchart shows Start → Input number → Multiply by 2 → Output result → End. What will the flowchart do for input 7?

- a) Output 14
- b) Output 7
- c) Output 2
- d) Output “Start”

Question 16: Which of these best describes supervised learning in AI (simple explanation)?

- a) Teaching a computer using example inputs with correct outputs (labels)
- b) Watching TV with a computer
- c) Throwing data randomly
- d) Unplugging the computer

Question 17: A school network wants to block unwanted websites. Which device or software is typically used to filter web access?

- a) Firewall
- b) Printer only
- c) Mouse pad
- d) An empty folder

Question 18: In programming, what does == normally check (in many languages)?

- a) Assignment of value
- b) Equality comparison
- c) Printing to screen
- d) A type of loop

Question 19: A sensor sends data to the cloud but the connection is weak. Which strategy helps IoT devices still work reliably?

- a) Store readings locally (edge buffering) and send when connection is good
- b) Stop sensing forever
- c) Send empty data always
- d) Drain the battery quickly

Question 20: Which SQL command is used to get data from a table?

- a) DELETE
- b) SELECT
- c) RUN
- d) PAINT

Question 21: To show steps clearly before coding, a student draws boxes, arrows and decision diamonds. This picture is called a:

- a) Flowchart
- b) Photograph
- c) Spreadsheet only
- d) Movie

Question 22: Which of these is a basic ethical rule for using AI and data?

- a) Respect privacy and avoid using sensitive personal data without permission
- b) Use anyone's data without asking always
- c) Hide how the model makes decisions always
- d) Make models only to trick people

Question 23: A robot uses a camera to find a red ball and that camera sends images to a program that detects colour. What is the program's input?

- a) Images (camera photos)
- b) The robot's battery
- c) A printed page only
- d) A screwdriver

Question 24: Which is a basic step in debugging (fixing code)?

- a) Test the program with sample inputs and check where it fails
- b) Delete the whole program always
- c) Ignore errors and hope they vanish
- d) Close the computer and leave it for a week

Question 25: A school database stores student names and phone numbers. Which practice helps protect privacy?

- a) Limit who can view the database and use passwords / access control
- b) Post the full database publicly on a notice board
- c) Share the file via unsecured email chain with parents only
- d) Print it in the school magazine without consent

Question 26: Which device provides an IP address and connects local devices to the internet at home?

- a) Router
- b) Speaker
- c) Keyboard
- d) Monitor

Question 27: A small AI model trained to sort apples was only trained on photos taken in daylight and fails on night-time photos. This is an example of:

- a) Not having diverse training data (poor generalization)
- b) A hardware malfunction unrelated to data
- c) The model becoming invisible at night
- d) A perfect model

Question 28: Which programming statement repeats actions while a condition is true?

- a) If-then only
- b) While loop (or for loop)
- c) Return statement only
- d) Comment block

Question 29: A student writes pseudo-code to add all numbers from 1 to N. Which of these is an algorithmic approach?

- a) Start, set sum=0, repeat i from 1 to N: sum = sum + i, output sum, end
- b) Start, wait, end
- c) Start, sleep, end
- d) Start, print "hello", end

Question 30: Which of these is a common format for storing structured data in files (rows and columns)?

- a) CSV
- b) MP3
- c) JPG
- d) GIF

Question 31: An IoT thermostat measures temperature and then sends a signal to the heater to turn on. The thermostat decision is an example of:

- a) Closed-loop control
- b) A food recipe
- c) A random guess without data
- d) A music player

Question 32: What is encryption used for in cybersecurity?

- a) To make data unreadable to unauthorized users
- b) To slow a computer down only
- c) To delete data automatically
- d) To draw pictures

Question 33: A teacher demonstrates sorting a list of words from A to Z. This is an example of which algorithmic idea?

- a) Sorting algorithm
- b) Tracing algorithm only
- c) Hiding data in a box
- d) Writing stories

Question 34: Which of the following is a good practice when designing a database table for students?

- a) Use atomic fields and avoid repeating groups
- b) Put all student info into a single text field with commas only
- c) Use paper files only and forget digital storage
- d) Mix dozen formats in each cell

Question 35: A smart door lock sends a notification when someone unlocks it. For quick local response the system checks lock status instantly without waiting for cloud — this is called:

- a) Edge computing (local processing)
- b) Cloud procrastination only
- c) Long-distance guessing
- d) Turning off everything

Question 36: What is phishing?

- a) A trick where attackers send fake messages to steal sensitive information (like passwords)
- b) A legitimate bank message always
- c) A weather alert type only
- d) A type of fishing for fish only

Question 37: A robot program uses `sensor = readDistance(); if (sensor < 10) stop(); else move();` — this code best shows use of:

- a) Conditionals based on sensor input
- b) Infinite loops only
- c) Graphic design commands
- d) A musical score

Question 38: Which of these is not a database operation?

- a) INSERT
- b) SELECT
- c) DELETE
- d) PAINT

Question 39: A machine learning model that classifies apples v/s oranges gives wrong labels because the training labels were wrong. This error is called:

- a) Label noise
- b) Hardware overheating only
- c) Perfect labelling always
- d) A power outage

Question 40: Which IoT connectivity method is commonly used for short-range device communication (room-level)?

- a) Bluetooth
- b) Satellite link only
- c) Transoceanic cable only
- d) Submarine modem

Question 41: A programmer notices the same code appears in three different places. Best practice action is to:

- a) Put the repeated code into a function and call it (avoid duplication)
- b) Leave duplication everywhere
- c) Delete the code randomly
- d) Rename files only

Question 42: Which is a sign of a strong password?

- a) Short and simple like “abc”
- b) Long, with letters (upper/lower), numbers and special characters
- c) Using your birthdate only
- d) Your pet’s name only

Question 43: A school wants to count how many students borrowed a book. Which database feature is most useful to track many borrows per student?

- a) A separate Borrowing table linking StudentID and BookID (many-to-many design)
- b) Writing counts on paper and tossing them monthly
- c) Using a single number cell for all data merged
- d) Putting books in a shelf without record

Question 44: Which AI task is used when the computer finds similar images to a photo?

- a) Image similarity / feature-matching
- b) Spelling correction only
- c) Playing music only
- d) Counting chairs only

Question 45: A web app lets only teachers edit grades, while students can view them. This is an example of:

- a) Access control
- b) Everyone has same keys always
- c) No security at all
- d) Deleting all data

Question 46: Which of these is the simplest example of an IoT device?

- a) A smart bulb you can turn on from a phone
- b) A stone in a field
- c) A paper notebook only
- d) A printed map

Question 47: To help students understand algorithms, the teacher asks them to write step-by-step instructions for tying shoelaces, then they test and improve. This practice illustrates:

- a) Algorithm design and iteration
- b) Painting only
- c) Memorization without testing
- d) Ignoring steps

Question 48: Which file type is best for storing images, not structured data?

- a) JPG or PNG
- b) CSV
- c) SQL
- d) TXT

Question 49: A developer wants to make sure a web form cannot be used by spammers automatically. Which simple measure helps block bots?

- a) Add a CAPTCHA (human check) or rate limiting
- b) Remove the submit button
- c) Make the page invisible only
- d) Allow unlimited automatic submissions

Question 50: Which of the following is a core idea in debugging that helps find where a program goes wrong?

- a) Test small parts (unit testing) and add print/log statements to see values
- b) Never test anything and guess results
- c) Reboot the planet
- d) Replace good code with random text

(NOT TO BE EVALUATED)

[illegible]