

SCO INTERNATIONAL CODING OLYMPIAD

CLASS 5 QUESTION PAPER

Set A | Practice Edition

Complete MCQ paper with answer key and explanations

Designed for Grade 5 coding learners with age-fit questions on Python, Scratch, game logic, animations, and computational thinking.

- 40 carefully reviewed multiple-choice questions across four sections
- single-correct answers with clear explanations for revision and teacher guidance
- question-block layout with diagrams placed inside relevant questions
- professionally formatted for school use, student practice, and website publication

Python

Scratch

Game Logic

Variables

Data Types

Loops

Animation

Sprites

Debugging

Achievers

SCO INTERNATIONAL CODING OLYMPIAD

Class 5 | Question Paper Set A | 40 Questions

Total Questions 40	Question Type MCQ	Sections 4	Answer Key Included
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Guidelines for Students

- Read each question carefully and select only one correct option.
- Use the explanations after each question for learning, revision, and classroom discussion.
- Code snippets should be read line by line before selecting the answer.
- For Scratch and game-development questions, focus on the order of blocks, events, and logic.

Section 1: Intro to Programming

Question 1 | Sec. 1: Intro to Programming

Which of the following is a correct way to declare a variable in Python?



A variable stores a value that a program can use.

- | | |
|---------------------|------------------|
| A. int x = 5 | B. x = 5 |
| C. var x = 5 | D. x := 5 |

Correct Answer: B

Explanation: In Python, a variable is created by assigning a value to a name. The statement `x = 5` stores the value 5 in the variable x without requiring a type declaration.

Question 2 | Sec. 1: Intro to Programming

What is the output of the following Python code?

```
print("Hello" + 5)
```



Different types cannot be joined directly in Python.

A. Hello5

B. Hello

C. TypeError

D. Error

Correct Answer: C

Explanation: Python cannot directly join a string and an integer with +. The expression raises a TypeError unless the number is converted to a string first.

Question 3 | Sec. 1: Intro to Programming

Which Python data type is used to store decimal numbers?

A. int

B. float

C. str

D. bool

Correct Answer: B

Explanation: The float data type stores numbers with decimal values, such as 3.5 or 12.75.

Question 4 | Sec. 1: Intro to Programming

What will the following code output?

```
x = "10"  
y = int(x) + 5  
print(y)
```

A. 105

B. 15

C. 10

D. TypeError

Correct Answer: B

Explanation: The value "10" is first converted from a string to the integer 10. Then 10 + 5 equals 15.

Question 5 | Sec. 1: Intro to Programming

Which Python data type is used for True/False values and is not used to store text?

A. str

B. int

C. float

D. bool

Correct Answer: D

Explanation: The bool data type stores logical values: True or False. Text is stored as a string, or str, in Python.

Question 6 | Sec. 1: Intro to Programming

Which operator is used to check equality in Python?

A. =

B. ==

C. !=

D. !==

Correct Answer: B

Explanation: The == operator checks whether two values are equal. A single = is used for assignment, not comparison.

Question 7 | Sec. 1: Intro to Programming

What is the output of this Python expression?

```
2 ** 3
```

A. 5

B. 6

C. 8

D. Error

Correct Answer: C

Explanation: The `**` operator performs exponentiation. So `2 ** 3` means 2 multiplied by itself three times: $2 \times 2 \times 2 = 8$.

Question 8 | Sec. 1: Intro to Programming

Which of these is a valid way to define a function in Python?

A. `function myFunc()`

B. `def myFunc():`

C. `func myFunc:`

D. `def myFunc[]:`

Correct Answer: B

Explanation: Python uses the keyword `def`, followed by the function name, parentheses, and a colon.

Question 9 | Sec. 1: Intro to Programming

What is the value of `x` after the following code runs?

```
x = 10
x += 5
```

A. 10

B. 15

C. 5

D. 20

Correct Answer: B

Explanation: The statement `x += 5` means `x = x + 5`. Starting from 10, `x` becomes 15.

Question 10 | Sec. 1: Intro to Programming

Which keyword is used to define a constant in Python?

- | | |
|----------|---|
| A. const | B. final |
| C. let | D. Python does not have a keyword for constants |

Correct Answer: D

Explanation: Python has no special keyword that makes a variable a true constant. Programmers usually write constant names in uppercase, such as MAX_SCORE, by convention.

Section 2: Basic Coding Applications**Question 11** | Sec. 2: Basic Coding Applications

What does the following Python loop print?

```
for i in range(3, 10, 2):  
    print(i)
```

- | | |
|----------------------------|---------------------------------------|
| A. Numbers from 3 to 10 | B. Even numbers between 3 and 10 |
| C. Odd numbers from 3 to 9 | D. Numbers from 3 to 9 without a step |

Correct Answer: C

Explanation: The range starts at 3, stops before 10, and increases by 2 each time. It prints 3, 5, 7, and 9.

Question 12 | Sec. 2: Basic Coding Applications

What is the output of the following Python code?

```
print(3 * "Hello")
```

- | | |
|--------------------|-------------------------|
| A. HelloHelloHello | B. Hello 3 |
| C. Hello | D. HelloHelloHelloHello |

Correct Answer: A

Explanation: Multiplying a string by an integer repeats the string. Therefore, "Hello" is printed three times together.

Question 13 | Sec. 2: Basic Coding Applications

Which Python function is used to convert a string into an integer?

A. int()

B. float()

C. str()

D. list()

Correct Answer: A

Explanation: The int() function converts a suitable value, such as "25", into an integer value, such as 25.

Question 14 | Sec. 2: Basic Coding Applications

In Scratch, how can a sprite be made to move forward when a key is pressed?



Event block + motion block creates a simple response.

A. Use a "when [key] pressed" event block with a "move 10 steps" block below it

B. Use only the "when green flag clicked" block

C. Use only the "glide" block

D. Use only the "say" block

Correct Answer: A

Explanation: A key-press event block can start a script when a chosen key is pressed. Adding a motion block below it makes the sprite move in response to that key.

Question 15 | Sec. 2: Basic Coding Applications

What is the purpose of the wait block in Scratch?

- | | |
|---|--|
| A. To stop the sprite forever | B. To pause the script for a set amount of time |
| C. To change the sprite appearance | D. To broadcast a message |

Correct Answer: B

Explanation: The wait block pauses a script for the specified time before the next block runs. This is useful for timing animations and games.

Question 16 | Sec. 2: Basic Coding Applications

Which Scratch block is used to make a sprite move forward by 10 steps?

- | | |
|--------------------------|--------------------------|
| A. move 10 steps | B. change x by 10 |
| C. glide 10 steps | D. move 10 pixels |

Correct Answer: A

Explanation: The motion block move 10 steps moves the sprite forward in its current direction.

Question 17 | Sec. 2: Basic Coding Applications

In Scratch, what happens when the green flag is pressed?

- | | |
|---------------------------------|--|
| A. The project stops | B. The project starts running |
| C. The sprite disappears | D. The sprite jumps automatically |

Correct Answer: B

Explanation: The green flag is used to start a Scratch project. Scripts that begin with when green flag clicked start running.

Question 18 | Sec. 2: Basic Coding Applications

Which Scratch block is best used to set a sprite to a chosen size percentage?

- | | |
|-------------------|----------------|
| A. change size by | B. set size to |
| C. change costume | D. set costume |

Correct Answer: B

Explanation: The set size to block sets a sprite to an exact size percentage, such as 50% or 100%.

Question 19 | Sec. 2: Basic Coding Applications

Which Scratch block can repeat a set of actions without stopping until the project stops?

- | | |
|--------------------|------------------|
| A. repeat block | B. forever block |
| C. broadcast block | D. wait block |

Correct Answer: B

Explanation: A forever block keeps running the blocks inside it again and again until the project is stopped.

Question 20 | Sec. 2: Basic Coding Applications

What does the broadcast block do in Scratch?

- | | |
|-------------------------------------|-------------------------------------|
| A. Starts a new sprite | B. Sends a message to other scripts |
| C. Changes the background by itself | D. Hides the sprite |

Correct Answer: B

Explanation: A broadcast sends a message across the project so that scripts waiting for that message can start.

Section 3: Game Development Basics

Question 21 | Sec. 3: Game Development Basics

What is the first planning step in creating a game?

- | | |
|--|---|
| A. Write all the code immediately | B. Design the game mechanics and rules |
| C. Create every sprite first | D. Create all levels without a plan |

Correct Answer: B

Explanation: Before coding, a game creator should decide how the game works: goals, rules, scoring, controls, and challenges.

Question 22 | Sec. 3: Game Development Basics

Which mechanism is commonly used to check player input, such as key presses, in a game?

- | | |
|---|---------------------------------|
| A. Event listeners or event blocks | B. Only loops |
| C. Only functions | D. Only background music |

Correct Answer: A

Explanation: Events help a program respond when the player presses a key, clicks the mouse, or touches a control.

Question 23 | Sec. 3: Game Development Basics

In game development, what is a sprite?

- | | |
|---|-----------------------------------|
| A. The background only | B. The player input device |
| C. A movable character or object in the game | D. The game soundtrack |

Correct Answer: C

Explanation: A sprite is a character or object that can appear, move, animate, and interact inside a game.

Question 24 | Sec. 3: Game Development Basics

Which action can be performed when a player clicks on a sprite in a game?

- | | |
|--|--------------------------------------|
| A. Change the sprite appearance | B. Move the sprite to a new location |
| C. Trigger an event such as scoring points | D. All of the above |

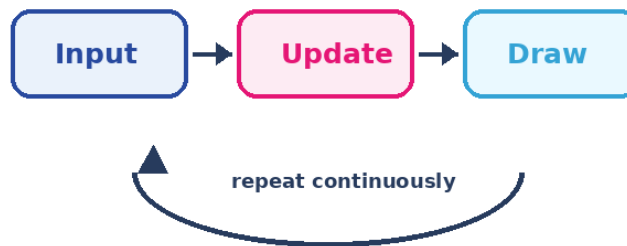
Correct Answer: D

Explanation: A click on a sprite can be programmed to change its look, move it, play a sound, update a score, or start another action.

Question 25 | Sec. 3: Game Development Basics

What is the purpose of a game loop in game development?

A game loop repeats the main actions of a game.



- | | |
|--------------------------------|---|
| A. To end the game immediately | B. To repeat the main game actions continuously |
| C. To store only the score | D. To create only the game-over screen |

Correct Answer: B

Explanation: A game loop repeatedly checks input, updates game objects, and refreshes the display so the game feels alive.

Question 26 | Sec. 3: Game Development Basics

In Scratch, which sensing condition is used to detect whether one sprite is touching another sprite?

A. touching color?

B. touching [sprite]?

C. when touching edge

D. key pressed?

Correct Answer: B

Explanation: The touching [sprite]? condition can check whether the current sprite is touching another selected sprite.

Question 27 | Sec. 3: Game Development Basics

Which of the following is NOT always required to make a basic playable game?

A. Sprites or game objects

B. Code blocks or instructions

C. Player controls or interaction

D. Background music

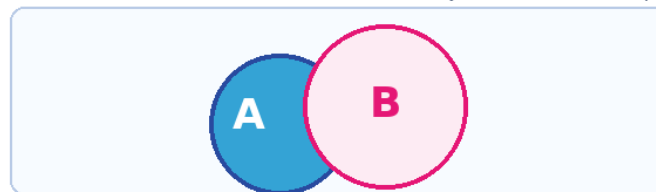
Correct Answer: D

Explanation: Background music can improve a game, but a basic playable game can work without it. Game objects, rules, and interaction are more essential.

Question 28 | Sec. 3: Game Development Basics

In a simple game, what does collision detection mean?

Collision detection checks whether two objects touch or overlap.



overlap area = collision

A. Tracking the player score

B. Checking whether two objects touch or overlap

C. Moving a sprite across the screen

D. Changing the background color

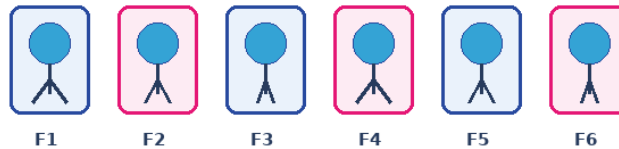
Correct Answer: B

Explanation: Collision detection is used to decide when objects such as a player and an obstacle touch each other.

Question 29 | Sec. 3: Game Development Basics

What is the purpose of a spritesheet in game development?

Spritesheet: many animation frames in one file



A. To create game levels only

B. To store multiple sprite images or animation frames in one file

C. To store background music

D. To generate random numbers

Correct Answer: B

Explanation: A spritesheet stores many frames in one image file. These frames can be shown in sequence to create animation.

Question 30 | Sec. 3: Game Development Basics

Which programming environment is commonly used by beginners to create simple 2D games?

A. Java

B. Python only

C. Scratch

D. C++ only

Correct Answer: C

Explanation: Scratch is a beginner-friendly visual programming environment often used to make simple animations and 2D games.

Section 4: Achievers Section

Question 31 | Sec. 4: Achievers Section

What will the following Python code output?

```
print((2 * 3) % 4)
```

- | | |
|-------------|-------------|
| A. 2 | B. 0 |
| C. 6 | D. 3 |

Correct Answer: A

Explanation: First calculate $2 * 3 = 6$. The remainder when 6 is divided by 4 is 2, so the output is 2.

Question 32 | Sec. 4: Achievers Section

Which sorting algorithm is usually efficient on average for large lists?

- | | |
|--------------------------|-------------------------|
| A. Bubble sort | B. Quick sort |
| C. Selection sort | D. Linear search |

Correct Answer: B

Explanation: Quick sort is commonly efficient on average for large lists. Bubble sort and selection sort are usually slower for larger data sets.

Question 33 | Sec. 4: Achievers Section

In a while loop, what happens if the condition is always true and nothing stops the loop?

- | | |
|--------------------------------------|--|
| A. The loop never runs | B. The loop runs exactly once |
| C. The loop runs indefinitely | D. The program automatically fixes the loop |

Correct Answer: C

Explanation: If the loop condition stays true forever, the loop keeps running. This is called an infinite loop.

Question 34 | Sec. 4: Achievers Section

What is the output of the following Python code?

```
x = [1, 2, 3]
x[1] = 5
print(x)
```

- | | |
|---------------------|---------------------|
| A. [1, 2, 3] | B. [1, 5, 3] |
| C. [5, 2, 3] | D. [1, 5] |

Correct Answer: B

Explanation: Python list indexes start at 0. The element at index 1 is the second element, so 2 changes to 5.

Question 35 | Sec. 4: Achievers Section

What is the result of this Scratch script?

```
when green flag clicked
forever
  move 10 steps
  if on edge, bounce
```

If on edge, bounce changes direction at the stage edge.



- | | |
|--|---|
| A. The sprite moves once in a straight line | B. The sprite keeps moving and bounces off the edges |
| C. The sprite only moves if clicked | D. The sprite disappears at the edge |

Correct Answer: B

Explanation: The forever block keeps moving the sprite. When the sprite reaches the edge, the if on edge, bounce block makes it turn back.

Question 36 | Sec. 4: Achievers Section

In Python, what will the following code print?

```
for i in range(5, 2, -1):  
    print(i)
```

- | | |
|-----------------|---------------------|
| A. 5 4 3 | B. 5 4 3 2 |
| C. 4 3 2 | D. 5 4 3 2 1 |

Correct Answer: A

Explanation: The range starts at 5, decreases by 1 each time, and stops before 2. It prints 5, 4, and 3.

Question 37 | Sec. 4: Achievers Section

Which of these is a common mistake when writing recursive functions?

- | | |
|--|--|
| A. Missing a base case | B. Using loops instead of recursion |
| C. Calling the function only once | D. Not using variables at all |

Correct Answer: A

Explanation: A recursive function must have a base case to stop calling itself. Without it, recursion may continue until an error occurs.

Question 38 | Sec. 4: Achievers Section

What does the modulo operator (%) do in Python?

- | | |
|--|--|
| A. Multiplies two numbers | B. Divides two numbers and returns the quotient |
| C. Finds the remainder after division | D. Adds two numbers |

Correct Answer: C

Explanation: The modulo operator returns the remainder after division. For example, $11 \% 4$ equals 3.

Question 39 | Sec. 4: Achievers Section

What does polymorphism mean in object-oriented programming?

- | | |
|---|---|
| A. Only one class can exist | B. Multiple functions must always have different names |
| C. One operation or method can work in different forms | D. A class cannot inherit from another class |

Correct Answer: C

Explanation: Polymorphism means that the same operation can behave differently depending on the object or input. It is an important object-oriented programming idea.

Question 40 | Sec. 4: Achievers Section

What is the best structure for storing named pieces of data of different types in one container?

- | | |
|----------------------|------------------|
| A. List | B. String |
| C. Dictionary | D. Set |

Correct Answer: C

Explanation: A dictionary stores data as key-value pairs. For example, a student record can store name, age, score, and class with meaningful keys.

Learning Review Notes

This paper strengthens coding fundamentals through variables, data types, Scratch events, game-loop thinking, collision detection, animation frames, debugging habits, and selected achiever-level concepts.

- Students should revise every incorrect answer using the explanation box.
- Teachers can use Scratch and Python questions as short classroom demonstrations.
- Schools may use the paper as a structured practice resource before the SCO International Coding Olympiad.

Answer Key Summary

Q1	B	Q2	C	Q3	B	Q4	B
Q5	D	Q6	B	Q7	C	Q8	B
Q9	B	Q10	D	Q11	C	Q12	A
Q13	A	Q14	A	Q15	B	Q16	A
Q17	B	Q18	B	Q19	B	Q20	B
Q21	B	Q22	A	Q23	C	Q24	D
Q25	B	Q26	B	Q27	D	Q28	B
Q29	B	Q30	C	Q31	A	Q32	B
Q33	C	Q34	B	Q35	B	Q36	A
Q37	A	Q38	C	Q39	C	Q40	C