CODING & ROBOTICS GRADE 4

DATE: 25 AUGUST 2026

TIME: 60 MINUTES

INSTRUCTIONS:

This booklet consists of multiple-choice questions, true or false, computational questions, practical and problem-solving questions.

The total of this booklet is out of fifty marks.

You have 60 minutes for the paper.

Read the questions carefully before answering.

Visit the website: www.saolympiads.co.za.

NAME OF LEARNER:	
SCHOOL:	**GRADE:**

SECTION A: MULTIPLE CHOICE QUESTIONS

1. Which description best explains an algorithm? (1)
   A. A computer screen layout
   B. A clear set of ordered steps to solve a problem
   C. A type of robot
   D. A computer virus

2. Which part of a computer is responsible for processing information? (1)
   A. Monitor
   B. CPU
   C. Mouse
   D. Speaker

3. Which device sends information into a computer? (1)
   A. Printer
   B. Monitor
   C. Keyboard
   D. Projector

4. What is the purpose of a loop in a programme? (1)
   A. To stop the programme
   B. To repeat instructions
   C. To delete data
   D. To save files

5. What does a sensor allow a robot to do? (1)
   A. Store data
   B. Detect changes in its surroundings
   C. Move faster
   D. Play sounds

6. Which of the following is NOT an output device? (1)
   A. Monitor
   B. Speaker
   C. Printer
   D. Mouse

7. Which number system uses only two digits? (1)
   A. Decimal
   B. Binary
   C. Hexadecimal
   D. Roman

8. Why is RAM important in a computer? (1)
   A. It stores files permanently
   B. It helps programmes run while the computer is on
   C. It powers the computer
   D. It controls the keyboard

9. What is the main role of software? (1)
   A. To build hardware
   B. To tell hardware what to do
   C. To supply electricity
   D. To connect wires

10. What does 'coding' mainly involve? (1)
   A. Drawing pictures
   B. Writing instructions for devices
   C. Fixing broken screens
   D. Typing documents

11. Which programming concept helps a programme make choices? (1)
   A. Variable
   B. Loop
   C. If statement
   D. Event

12. Which Scratch block reacts to user actions like key presses? (1)
   A. Motion block
   B. Event block
   C. Sound block
   D. Looks block

13. What happens when a Scratch script runs in parallel? (1)
   A. Scripts stop working
   B. Multiple actions happen at the same time
   C. The programme slows down
   D. Only one sprite moves

14. Which example shows responsible digital behaviour? (1)
   A. Sharing passwords
   B. Clicking unknown links
   C. Asking permission before downloading
   D. Posting personal details

15. What does an actuator do in a robot? (1)
    A. Collects data
    B. Makes decisions
    C. Causes movement or action
    D. Stores programmes

16. What is a variable best used for? (1)
    A. Repeating code
    B. Storing values that can change
    C. Starting a programme
    D. Moving sprites

17. Which device controls other robot components? (1)
    A. Sensor
    B. Actuator
    C. Controller
    D. Battery

18. Why is testing important in programming? (1)
    A. To make code longer
    B. To find and correct errors
    C. To add colours
    D. To delete variables

19. Which example shows automation? (1)
    A. Typing each command manually
    B. A robot repeating a task without help
    C. Turning off a computer
    D. Writing notes on paper

20. Which statement about robots is TRUE? (1)
    A. Robots can think like humans
    B. Robots follow programmed instructions
    C. Robots do not need power
    D. Robots only work once

(20)

SECTION B: TRUE OR FALSE STATEMENTS

1. A controller helps a robot process input and control actions. (1)
   A. True
   B. False
2. Binary numbers use the digits 0 to 9. (1)
   A. True
   B. False
3. An if statement allows a programme to make decisions. (1)
   A. True
   B. False
4. Sharing personal information online is always safe. (1)
   A. True
   B. False
5. Debugging is part of improving a programme. (1)
   A. True
   B. False

(5)

SECTION C: COMPUTATIONAL

(5)

1. Write the steps for a Scratch programme where a sprite moves left and right when arrow keys are pressed.

'Move (-10) steps' block	'When green flag clicked' block
'Move (10) steps' block	'When right arrow key pressed' block
'When left arrow key pressed' block	

2. Create an algorithm where a sprite counts points when it touches an object. List the blocks used in order. (5)

'Set score to 0' block	'If touching sprite' block
'Repeat' block	'When green flag clicked' block
'Change score by 1' block	

(10)

SECTION D: PRACTICAL APPLICATION AND PROBLEM SOLVING

(7)

1. A robot must follow a straight path and stop when it reaches an obstacle. Write the algorithm steps.

Start programme	Stop movement
If obstacle detected	Move forward
Check sensor	End programme
Wait	

2. Design a Scratch animation where two sprites take turns moving when a key is pressed. Order the blocks. (8)

'Sprite 2: move 10 steps'	'Sprite 1: move 10 steps'
'Stop all' block	'When green flag clicked' block
'When key pressed' block	'Repeat' block
'Forever' block	'Wait 0.5 seconds'

(15)

TOTAL = 50 MARKS