CODING & ROBOTICS OLYMPIAD GRADE 5

DATE: 25 AUGUST 2026

TIME: 60 MINUTES

INSTRUCTIONS:

This booklet has multiple-choice questions, true or false questions, 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. What is the main role of the operating system on a computer? (1)
   A. To display pictures
   B. To manage hardware and software
   C. To connect to the Internet
   D. To store data permanently

2. Which of the following is an example of application software? (1)
   A. Windows
   B. Linux
   C. Microsoft Word
   D. BIOS

3. What does ROM store in a computer system? (1)
   A. Temporary data
   B. Instructions needed to start the computer
   C. Internet files
   D. User documents

4. Which device allows a user to give commands to a computer? (1)
   A. Monitor
   B. Printer
   C. Speaker
   D. Keyboard

5. What is the purpose of an algorithm in problem solving? (1)
   A. To guess an answer
   B. To follow clear, ordered steps
   C. To design hardware
   D. To write stories

6. Which of the following tasks is controlled by an operating system? (1)
   A. Creating games
   B. Managing memory
   C. Designing websites
   D. Typing documents

7. What does iteration mean in programming? (1)
   A. Stopping a programme
   B. Making decisions
   C. Repeating instructions
   D. Fixing errors

8. Why are sensors important in robotics? (1)
   A. They help robots sense their environment
   B. They give power to robots
   C. They store programmes
   D. They decorate robots

9. Which Scratch block starts a script when a key is pressed? (1)
   A. When green flag clicked
   B. When key pressed
   C. When sprite clicked
   D. When backdrop changes

10. What is the main purpose of the 'broadcast' block in Scratch? (1)
   A. To send messages between sprites
   B. To change sprite size
   C. To repeat a loop
   D. To stop all programmes

11. What do we call information sent out of a computer? (1)
   A. Input
   B. Output
   C. Process
   D. Storage

12. What is the function of a conditional statement in Scratch? (1)
   A. To repeat actions
   B. To move sprites
   C. To stop programmes
   D. To make decisions

13. Which unit is used to measure computer memory size? (1)
   A. Volts
   B. Watts
   C. Seconds
   D. Bytes

14. What is meant by debugging a programme? (1)
   A. Writing new code
   B. Finding and fixing errors
   C. Deleting a project
   D. Installing software

15. Which hardware component processes instructions? (1)
    A. RAM
    B. Hard drive
    C. CPU
    D. Power supply

16. What does a 'forever' loop do in Scratch? (1)
    A. Runs code once
    B. Repeats code continuously
    C. Stops when clicked
    D. Runs only if a condition is true

17. What is the function of a distance sensor on a robot? (1)
    A. To detect colours
    B. To play sounds
    C. To measure how far objects are
    D. To control motors

18. Which part allows a computer to connect to a network? (1)
    A. Graphics card
    B. Network interface
    C. Sound card
    D. Power supply

19. What does a sprite's costume change affect in Scratch? (1)
    A. The background sound
    B. The programme speed
    C. The variables
    D. The sprite's appearance

20. Which Scratch block category is mainly used for decision making? (1)
    A. Motion
    B. Control
    C. Events
    D. Looks

(20)

SECTION B: TRUE OR FALSE STATEMENTS

1. ROM keeps its data even when the computer is turned off. (1)
   A. True
   B. False
2. A loop can repeat instructions an unlimited number of times. (1)
   A. True
   B. False
3. All sensors in robotics measure distance. (1)
   A. True
   B. False
4. Debugging helps improve how a programme works. (1)
   A. True
   B. False
5. Coding skills can be used in many different careers. (1)
   A. True
   B. False

(5)

SECTION C: COMPUTATIONAL

(5)

1. Using the blocks listed below, write a Scratch programme that makes a sprite count down from 5 to 1 and say each number out loud.

'when green flag clicked' block	'say (counter) for 1 second' block
'change counter by -1' block	'repeat 5 times' block
'set counter to 5' block	

2. Using the blocks listed below, design a sequence of steps to instruct a robot to move in a zig-zag path. (5)

'when green flag clicked' block	'turn left 45 degrees' block
'turn right 45 degrees' block	'repeat 4 times' block
'move forward 60 units' block	

(10)

SECTION D: PRACTICAL APPLICATION AND PROBLEM SOLVING

(7)

1. A motion sensor must trigger an alarm when movement is detected. Write the steps and logic you would use in Scratch to program this behaviour.

'when green flag clicked' block	'forever' block
'if <motion sensor detects movement>' block	'end if' block
'play alarm sound' block	'stop sound' block
'else' block	

2. Design a Scratch game where a character moves left and right to collect stars. Each time a star is collected, the score increases. The game continues until the player presses the stop key. (8)

'when green flag clicked' block	'forever' block
'change x by -10' block	'if <sprite touching star>' block
'change x by 10' block	'if <right arrow key pressed>' block
'if <left arrow key pressed>' block	'change score by 1' block

(15)

TOTAL = 50 MARKS