CODING & ROBOTICS PRIMARY SCHOOL OLYMPIADS:

GRADES 4 - 7

E-mail: Info@saolympiads.co.za website: www.saolympiads.co.za

GRADE 5

DATE: 26 AUGUST 2025

TIME: 60 MINUTES

INSTRUCTIONS:

1. This booklet has multiple-choice questions, true or false questions, computational questions, practical and problem-solving questions.
2. The total of this booklet is out of fifty marks.
3. You have 60 minutes for the paper.
4. Read the questions carefully before answering.
5. Visit the website: www.saolympiads.co.za.

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

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SECTION A: MULTIPLE CHOICE QUESTIONS

1. What is the primary function of a computer's CPU? (1)

   A. To store data
   B. To process instructions
   C. To display graphics
   D. To manage the keyboard

2. Which of these is a high-level programming language? (1)

   A. Machine code
   B. Assembly language
   C. Python
   D. Binary code

3. What does 'RAM' stand for ? (1)

   A. Readily Accessed Memory
   B. Random Access Memory
   C. Rapid Action Memory
   D. Read Access Memory

4. Which device is used to input information into a computer? (1)

   A. Printer
   B. Monitor
   C. Keyboard
   D. Speaker

5. What is an algorithm? (1)

   A. A problem in a computer
   B. A type of computer virus
   C. A set of instructions to solve a problem
   D. A component inside the computer

6. Which of the following is NOT a function of the operating system? (1)

   A. Managing hardware resources
   B. Running applications
   C. Writing programmes
   D. Controlling peripherals

7. What is a loop in programming? (1)

   A. A syntax error
   B. A command that ends the programme
   C. A sequence that repeats several times
   D. A message displayed by the computer

8. What is the purpose of a sensor in robotics? (1)

   A. To provide power to the robot
   B. To programme the robot
   C. To allow the robot to interact with its environment
   D. To paint the robot

9. Which block in Scratch is used to start a script when a sprite is clicked?? (1)

A. When green flag clicked
B. When sprite clicked
C. When key pressed
D. When backdrop switches

10. What is the main use of the 'broadcast' block in Scratch? (1)

A. To send messages between sprites
B. To change the colour of a sprite
C. To stop all scripts
D. To start a new project

11. Which term describes data that is entered into a computer? (1)

A. Output
B. Input
C. Throughput
D. Download

12. What action does the 'if' block perform in Scratch? (1)

A. It repeats a sequence of instructions
B. It checks for a condition and executes a sequence if the condition is true
C. It stops the programme
D. It hides the sprite

13. Which unit is data stored in a computer measured?? (1)

A. Watts
B. Bytes
C. Volts
D. Hertz

14. What is meant by 'debugging' in programming? (1)

A. Fixing errors in a programme
B. Creating bugs for testing
C. Installing software
D. Upgrading hardware

15. Which component is considered the 'brain' of the computer? (1)

A. Hard drive
B. RAM
C. CPU
D. Motherboard

16. What does the 'repeat until' block do in Scratch programming? (1)

A. It stops the script immediately when a condition is met
B. It repeats the blocks inside it until a specified condition becomes true
C. It executes only once and then checks a condition
D. It continues indefinitely without checking conditions

17. What is the function of the ultrasonic sensor in a robotics project? (1)

A. To detect sound
B. To measure distance
C. To display images
D. To record video

18. Which of these components is essential for a computer to connect to the internet? (1)

A. USB drive
B. Network card
C. Graphics card
D. Sound card

19. What does the ‘costume' refer to in Scratch? (1)

A. A part of the background
B. A change in the sprite’s appearance
C. A new variable
D. A type of loop

20. What type of block would you use to make decisions in Scratch? (1)

A. Operator block
B. Control block
C. Event block
D. Data block

(20)

SECTION B: TRUE OR FALSE STATEMENTS

1. A sensor in a robot can detect changes in its environment. (1)

   A. True
   B. False

2. Loops can only run a fixed number of times. (1)

   A. True

   B. False

3. All robots are autonomous. . (1)

   A. True

   B. False

4. Debugging is only needed when a programme does not work at all. (1)

   A. True

   B. False

5. Coding can only be done on computers. (1)

   A. True

   B. False

(5)

SECTION C: COMPUTATIONAL

‘when green flag clicked’ block	‘for each number from 1 to 10’ block
‘say (number)’ block	'change number by 1' block
'wait 2 seconds' block	‘repeat (10)’ block

1. Using the lines above, write a simple program using Scratch blocks that will count from 1 to 10 and say each number out loud. (5)

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'repeat 4 times' block	'start' block
'move forward 100 units' block	'end' block
'turn right 90 degrees' block	'wait' block

2. Using the lines above, design a sequence of steps to instruct a robot to draw a square. (5)

(10)

SECTION D: PRACTICAL APPLICATION AND PROBLEM SOLVING

1. You are to program a light sensor to turn on a light when it gets dark. List the steps and logic you would use in Scratch to program this behaviour. (7)

'when green flag clicked' block	'turn on light' block
'turn on light' block	'end if' block
'else; block	'turn off light' block
'if <light sensor detects dark>' block	'forever' block

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2. Design a simple game in Scratch where a character moves left and right to catch falling apples. If an apple reaches the bottom of the screen without being caught, the game ends. (8)

‘when green flag clicked’ block	‘change x by -10’ block
‘change x by 10’ block	‘if <right arrow key pressed>’ block
‘if <left arrow key pressed>’ block	‘if <apple touching edge>’ block
'game over' for 2 seconds’ block	‘forever’ block

TOTAL = 50 MARKS