CODING & ROBOTICS OLYMPIAD MARKING MEMOS

Grade 4

SECTION A:

1.	A
2.	D
3.	A
4.	C
5.	B
6.	A
7.	A
8.	C
9.	D
10.	B
11.	D
12.	B
13.	C
14.	D
15.	C
16.	B
17.	B
18.	B
19.	D
20.	B

SECTION B:

1.	A
2.	A
3.	A
4.	A
5.	A

SECTION C

Question 1

What blocks will you use in Scratch to move a sprite up and down infinitely? Write them down in order. (5 marks)

Correct use of the forever block (1 mark)

Correct use of the move (10) steps block (1/2 mark)

Correct use of the change y by (10) block (1/2 mark)

Correct use of the wait (0.25) seconds block (1/2 mark)

Correct use of the move (-10) steps block (1/2 mark)

Correct use of the change y by (-10) block (1/2 mark)

Correct use of the wait (0.25) seconds block (1/2 mark)

Correct sequence and repetition to achieve the up and down movement (1 mark)

Question 2

What block would you use in Scratch to make a sprite say "Hello, world!" when the green flag is clicked? Write them down in order. (5 marks)

Correct use of the when flag clicked block (1 mark)

Correct use of the say block (1 mark)

Correct use of the broadcast block if needed (1 mark)

Correct use of the forever block if needed (1 mark)

Correct sequence to ensure the sprite says "Hello, world!" when the green flag is clicked (1 mark)

SECTION D

Question 1

Order the blocks you would use to move a sprite in different directions based on arrow keys. (8 marks)

Correct use of when [up arrow] key pressed block (1 mark)

Correct use of change y by (10) block (1 mark)

Correct use of when [right arrow] key pressed block (1 mark)

Correct use of change x by (10) block (1 mark)

Correct use of when [down arrow] key pressed block (1 mark)

Correct use of change y by (-10) block (1 mark)

Correct use of when [left arrow] key pressed block (1 mark)

Correct use of change x by (-10) block (1 mark)

Question 2

Order the code for the robot to stop and turn left if an obstacle is detected within 5 cm. (7 marks)

Correct use of repeat forever loop (1 mark)

Correct use of if obstacle distance < 5cm block (1 mark)

Correct use of else block (1 mark)

Correct use of move forward block within the else condition (1 mark)

Correct use of stop block within the if condition (1 mark)

Correct use of turn left block within the if condition (1 mark)

Correct sequence and logic to achieve the desired behavior (1 mark)

Total of the Paper = 50 marks

Grade 5

SECTION A

1.	A
2.	C
3.	B
4.	A
5.	A
6.	A
7.	C
8.	B
9.	A
10.	B
11.	A
12.	B
13.	A
14.	B
15.	B
16.	C
17.	B
18.	B
19.	C
20.	A

SECTION B

1.	A
2.	A
3.	A
4.	B
5.	A

SECTION C

Question 1

Using the lines above, write a line of code for a simple loop. (5 marks)

Correct use of repeat (10) block (1 mark)

Correct use of move (10) steps block within the repeat loop (1 mark)

Proper closing of the loop, use of end (1 mark)

Correct sequence (2 marks)

Question 2

Using the lines above, write a simple code to make sprite talk and move forward. (5 marks)

Correct use of when this sprite clicked block (1 mark)

Correct use of move 10 steps block (1 mark)

Correct use of play sound [your sound] until done block (1 mark)

Proper closing of the above, use of end (1 mark)

Correct sequence to ensure the sprite talks and then moves forward (1 mark)

SECTION D

Question 1

Order the sequence of actions to demonstrate the logic the robot should follow to sort red, green, and blue objects into three separate bins. (9 marks)

Correct use of repeat until all objects are sorted (1 mark)

Correct use of scan object with colour sensor (1 mark)

Correct use of if colour is red (1 mark)

Correct use of move object to red bin (1 mark)

Correct use of else if colour is green (1 mark)

Correct use of move object to green bin (1 mark)

Correct use of else if colour is blue (1 mark)

Correct use of move object to blue bin (1 mark)

Correct sequence to demonstrate the sorting logic (1 mark)

Question 2

Order the code needed to make the sprite move in a square. (6 marks)

Correct use of when flag clicked block (1 mark)

Correct use of forever block (1 mark)

Correct use of repeat 4 block within the forever loop (1 mark)

Correct use of move (10) steps block within the repeat loop (1 mark)

Correct use of turn clockwise (90) degrees block within the repeat loop (1 mark)

Correct use of wait (0.5) seconds block within the repeat loop (1 mark)

Total of the Paper = 50 marks

Grade 6

SECTION A

1.	B
2.	D
3.	A
4.	C
5.	B
6.	B
7.	C
8.	A
9.	A
10.	A
11.	C
12.	D
13.	C
14.	C
15.	C
16.	B
17.	C
18.	B
19.	B
20.	B

SECTION B

1.	A
2.	A
3.	A
4.	A
5.	A

SECTION C

Question 1

Using the lines above, write a line of code to create a short animation. (5 marks)

Correct use of when flag clicked block (1 mark)

Correct use of go to x: (0) y: (0) block (1 mark)

Correct use of wait (2) seconds block (1 mark)

Correct use of go to x: (50) y: (50) block (1 mark)

Correct use of turn right (15) degrees block (1 mark)

Question 2

Using the lines above, write a line of code to create a short animation. (5 marks)

Correct use of when green flag clicked block (1 mark)

Correct use of forever block (1 mark)

Correct use of switch backdrop to [Backdrop1 v] block (1 mark)

Correct use of wait (1) secs block (1 mark)

Correct use of switch backdrop to [Backdrop2 v] block (1 mark)

SECTION D: Question 1

In a Scratch project, you want to create a game where a sprite collects falling apples. The apples should fall from random positions at the top of the screen and the sprite should catch them at the bottom. Order the blocks needed to achieve this. (12 marks)

Correct use of when flag clicked block (1 mark)

Correct use of forever block (1 mark)

Correct use of create clone of [apple] block (1 mark)

Correct use of go to x: pick random (-240) to (240) y: 180 block (1 mark)

Correct use of when I start as clone block (1 mark)

Correct use of repeat until <touching [edge] or touching [sprite]> block (1 mark)

Correct use of change y by (-10) block within the repeat loop (1 mark)

Correct use of wait (0.1) seconds block within the repeat loop (1 mark)

Correct use of if <touching [sprite]> block (1 mark)

Correct use of change score by (1) block within the if statement (1 mark)

Correct use of delete this clone block within the if statement (1 mark)

Correct sequence to ensure the game logic is implemented correctly (1 mark)

Question 2

You are creating a Scratch project where a sprite follows the mouse pointer. Order the blocks needed to make the sprite continuously move towards the mouse pointer. (3 marks)

Correct use of when flag clicked block (1 mark)

Correct use of forever block (1 mark)

Correct use of go to [mouse-pointer] block (1 mark)

Total of the Paper = 50 marks

Grade 7

SECTION A

1.	D
2.	D
3.	B
4.	C
5.	A
6.	C
7.	C
8.	A
9.	C
10.	B
11.	B
12.	D
13.	D
14.	C
15.	C
16.	B
17.	C
18.	C
19.	C
20.	B

SECTION B

1.	B
2.	A
3.	A
4.	B
5.	B

SECTION C

Question 1

Using the lines above, write a code to make a ball bounce up and down. (5 marks)

Correct use of when green flag clicked block (1 mark)

Correct use of move (10) steps block (1 mark)

Correct use of forever block (1 mark)

Correct use of wait until <touching edge?> block (1 mark)

Correct use of turn cw (180) degrees block (1 mark)

Question 2: Using the lines above, write the code for back-and-forth broadcasting message between two sprites. (5 marks)

Correct use of when green flag clicked block for Sprite A (1 mark)

Correct use of broadcast [message1] block for Sprite A (1 mark)

Correct use of when I receive [message1] block for Sprite B (1 mark)

Correct use of broadcast [message2] block for Sprite B (1 mark)

Correct sequence of above (1 mark)

SECTION D: Question 1

You need to program a robot to clean a room by following a predefined path. The robot should move forward, turn right when it reaches the edge of the room, and continue this pattern until the entire room is clean. Order the codes for this task. (6 marks)

Correct use of start (1 mark)

Correct use of move forward (1 mark)

Correct use of repeat until room is clean (1 mark)

Correct use of if edge of room detected (1 mark)

Correct use of move forward within the repeat loop (1 mark)

Correct use of turn right within the if statement (1 mark)

Question 2: You are programming a robot to follow a light source using a light sensor. The robot should turn towards the direction where the light intensity is highest and move forward. Order the codes for this task. (9 marks)

Correct use of start (1 mark)

Correct use of repeat forever (1 mark)

Correct use of read light intensity from left sensor (1 mark)

Correct use of read light intensity from right sensor (1 mark)

Correct use of if left sensor detects more light (1 mark)

Correct use of turn left within the if statement (1 mark)

Correct use of else if right sensor detects more light (1 mark)

Correct use of turn right within the else if statement (1 mark)

Correct use of move forward within the repeat loop (1 mark)

Total of the Paper = 50 marks