Automated and emerging technologies – 2021 O Level 2210

1. Nov/2021//Paper_12/No.8

An electronic game has **three** square mats that are coloured red, green and blue.

The player will see a colour displayed on a screen and has 1 second to hit the mat that matches the colour. If the player hits the correct mat, within 1 second, a counter is incremented. When a player hits an incorrect mat, the game ends.

The game uses sensors and a microprocessor to determine if the player hits the correct mat within 1 second.

hits a correct mat within 1 second.
[7]

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2. Nov/2021//Paper_11/No.5

Jamelia has a greenhouse that she uses to grow fruit and vegetables. She needs to make sure the temperature in the greenhouse stays between 25 °C and 30 °C (inclusive).

A system that has a temperature sensor and a microprocessor is used to maintain the temperature in the greenhouse. The system will:

- open a window and turn a heater off if it gets too hot
- close a window and turn a heater on if it gets too cold.

Describe how the system uses the temperature sensor and the microprocessor to maintain the temperature in the greenhouse.
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2	NI /2024	110	40/11- 5
3.	Nov/2021/	/Paper	12/N0.5

A security light system is used by a factory. The light only comes on when it is dark and when movement is detected. The light will stay on for 1 minute before switching off.

Sensors and a microprocessor are used to control the security light system.

(a)	Identify two sensors that would be used in the security light system.	
	Sensor 1	
	Sensor 2	
(b)	Describe how the sensors and the microprocessor control the security light system.	[2
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