ICT applications – 2022 ICT IGCSE 0417

1. March/2022/Paper_12/No.4

Tick (✓) whether the following statements refer to control, measurement or modelling systems.

Only tick (✓) **one** answer for each statement.

	control (✓)	measurement (✓)	modelling (✓)
Maintaining the growing conditions in a glasshouse			
Aircraft flight simulation			
Monitoring the pollution in a river			
Using what-ifs			

[4]

2. March/2022/Paper_12/No.6

Global Positioning Systems (GPS) are used for many different applications.

(a) Describe how GPS is used by a smartphone to pinpoint its location.

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(b) Give **three** other examples of the use of GPS.

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[3]

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3. March/2022/Paper_12/No.7(a)

Tawara School is presenting a concert. For previous concerts the booking of tickets was carried out manually using pen and paper.

For this concert they are going to use an online booking system.

(a) Discuss the advantages and disadvantages of Tawara School using an online booking system rather than the manual system.

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4. June/2022/Paper_11/No.10

A river authority is concerned about levels of pollution in a major river. The quality of the water in the river needs to be monitored using sensors.

(a) Name **three** sensors that could be used to measure the pollution in the river.

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(b) Discuss the advantages and disadvantages of using computers to measure the pollution in the river rather than humans measuring the pollution.

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5. June/2022/Paper_11/No.15(b)

(b) Describe the processing carried out by the theatre's computer when making a booking.

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6. June/2022/Paper_12/No.2

A computer-controlled glasshouse is used to grow plants.

Identify **two** output devices used in this glasshouse.

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2 .....

[2]

7. June/2022/Paper_12/No.11

A car manufacturing company uses computer-controlled robots to manufacture its cars.

Discuss the advantages and disadvantages to the company of using computer-controlled robots rather than using humans to manufacture the cars.

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8. June/2022/Paper_13/No.5(c)

(c) Discuss the advantages and disadvantages of using manual booking systems rather than online booking systems.

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9. June/2022/Paper_13/No.7(a)

Tawara Stores has realised that the number of people shopping for food online has increased over the past few years.

(a) Discuss the advantages and disadvantages to the customer of shopping for food online.

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10. June/2022/Paper_13/No.14

People can manage their banking transactions using the internet. However, if the internet signal is poor telephone banking can be used.

A person wishes to use telephone banking without speaking to an operator to transfer money from one bank account to another.

Describe the steps needed to do this.

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11. Nov/2022/Paper_11/No.5

A student is carrying out a scientific experiment to measure the temperature of a liquid as it cools down. The student uses a sensor connected to a computer to read the temperature.

(a) Give **three** advantages of using computers and sensors rather than the student taking the temperature readings herself.

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[3]

(b) Describe how the readings taken by the sensor are displayed on a graph using the computer.

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(c) Explain the differences between measurement systems and control systems.

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12. Nov/2022/Paper_11/No.14

A research student is undertaking a study of endangered animals in the Amazon rainforest. She is using a drone to replace surveys carried out on foot. A drone is a remote-controlled flying vehicle.

Describe the benefits and drawbacks of using a drone to monitor the animals in the rainforest.

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13. Nov/2022/Paper_12/No.6

In June 2000 the London Millennium Bridge opened to the public but closed shortly afterwards for repairs. The bridge was swaying as people walked across it. Before bridges are built, computer models are produced and the models are tested.

Explain why computer models are used before building a bridge.

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14. Nov/2022/Paper_12/No.8

In 2019 Cambridge recorded the highest temperature for July in the UK. The data was collected automatically using sensors by a weather station and sent to a computer.

Discuss the advantages and disadvantages of using sensors to collect data rather than humans collecting the data.

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15. Nov/2022/Paper_12/No.11(b, c)

Sensors are placed in the river to check the water level. If the water level in the river rises more than 5m above normal river levels, a flood barrier is raised to safeguard the village. The flood barrier remains raised until the water level drops to normal levels.

(b) Explain why the data from the sensors cannot be read directly by the computer and name the device that needs to be used so that the computer can read the data.

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(c) Describe how a microprocessor uses the data from the sensors to raise and lower the flood barrier.

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16. Nov/2022/Paper_13/No.4

A person contacts an online medical website that uses an expert system to allow users to self-diagnose illnesses.

(a) Write down the component within the expert system that matches the definition given.

(i) This component contains a database of facts.

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(ii) This component carries out the reasoning of the expert system.

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(iii) This component allows the person to interact with the system.

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(b) Describe how an expert system is used to diagnose an illness.

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17. Nov/2022/Paper_13/No.5(a)

A restaurant uses a number of different types of software. These include control, measurement, spreadsheet and word processing software.

(a) Tick (✓) the most appropriate piece of software to carry out the tasks shown.

	Control (✓)	**Measurement** (✓)	**Spreadsheet** (✓)	**Word processing** (✓)
Producing menus for the restaurant				
Calculating the cost of each of the meals				
Automatically turning on the fans when the room gets too hot				
Monitoring the temperature in the restaurant				

[4]

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