

CANDIDATE
NAME

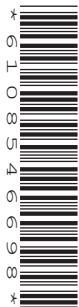
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INFORMATION TECHNOLOGY

9626/13

Paper 1 Theory

October/November 2019

1 hour 45 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces at the top of this page.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **all** questions.

Calculators are not allowed on this paper.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

Any businesses described in this paper are entirely fictitious.

This document consists of **14** printed pages and **2** blank pages.

- 1 Tick the **four** most accurate statements regarding the benefits of gathering data from direct data sources.

| | |
|--|---|
| | ✓ |
| You only have to gather as much or as little data as you need | |
| It allows data to be gathered from subjects to which the data gatherer does not have physical access | |
| You can obtain the data faster than using an indirect data source | |
| You have full control over the method used to collect the data | |
| A much larger sample size can be used than is possible with indirect data sources | |
| A direct data source is quicker to search | |
| There may be an opportunity to sell the data to other people for them to use | |
| You do not have to spend time interviewing people or giving out questionnaires | |
| A CD ROM of historical data is a direct data source | |
| The source of the data is known exactly, making it easier to judge its reliability | |

[4]

- 2 Tick the **four** most accurate statements regarding the gathering of personal data by unauthorised persons.

| | |
|---|---|
| | ✓ |
| Pharming involves sending a website URL, inviting the receiver to go to the website | |
| Smishing involves using text messages to persuade people to give out personal information | |
| Phishing involves installing malicious software on the victim's computer | |
| Pharming involves creating a fake website that looks like an actual bank's website | |
| Phishing involves the sending of fake emails in order to advertise the bank | |
| Vishing involves the fraudster's computer redirecting a customer's phone call to his own phone | |
| Banks can ask you from time to time to send them your full password to check you are authorised to use that account | |
| Vishing involves receiving a phone call from a fraudster | |
| Vishing never involves getting the customer to phone the bank | |
| Smishing is the same as vishing but never involves the use of a phone | |

[4]

3 Most computer systems consist of hardware and software.

(a) Define the term 'hardware' in an IT context.

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(b) Giving brief descriptions of **two** examples, define the term utility software.

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4 Using a news website as an example, describe what is meant by dynamic data.

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- 5 When creating queries, a function IIf() is often used. A table containing a list of where people live and their status could exist so that a query could be constructed:

IIf([Living_in]="own home","own","other")

This would look in a list of where people lived for the words 'own home' and would output the word 'own' if a match were found. If it was not 'own home' then the word 'other' is output.

- (a) Complete the nested query that would be used to output 'rented' for anyone living in accommodation owned by a landlord. This is indicated by the word 'landlord' in the *Living_in* field (see table on page 5).

IIf([Living_in]="own home","own"
..... [6]

You can use the space below for any working you need.

6 John, a user interface designer, has been asked by a systems analyst to design an interface for a proposed information system. He will need to consider a mental model of the potential users of the system.

(a) Describe what is meant by a mental model in this context.

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(b) Describe the features of a user interface which need to be considered when planning its design. Where appropriate, give examples of each feature.

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10 Expert systems often use a mixture of forward chaining and backward chaining to determine the probable solution to a problem.

Describe the terms:

(a) Forward chaining.

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(b) Backward chaining.

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11 Here is a spreadsheet showing the medal winners at some of the 2016 Olympics swimming events.

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
|----|--------------|---------------|------|--------|--------|---|-----------------------|----------|--------------|--------|----------|-----------------|-------------|---------------------|-----------------|---|---|
| 1 | Country code | Country name | Gold | Silver | Bronze | | Swimmer | Distance | Stroke | Gender | Position | Code of country | Time (secs) | Average speed (m/s) | Name of country | | |
| 2 | | | | | | | | | | | | | | | | | |
| 3 | AUS | Australia | 1 | 0 | 1 | | Kyle Chalmers | 100m | Freestyle | M | 1 | AUS | 47.58 | 2.10 | Australia | | |
| 4 | BEL | Belgium | 0 | 1 | 0 | | Pieter Timmers | 100m | Freestyle | M | 2 | BEL | 47.80 | 2.09 | Belgium | | |
| 5 | CAN | Canada | 1 | 1 | 0 | | Nathan Adrian | 100m | Freestyle | M | 3 | USA | 47.85 | 2.09 | United States | | |
| 6 | CHN | China | 1 | 0 | 0 | | Penny Oleksiak | 100m | Freestyle | F | 1 | CAN | 52.70 | 1.90 | Canada | | |
| 7 | GBR | Great Britain | 1 | 0 | 0 | | Simone Manuel | 100m | Freestyle | F | 2 | USA | 52.71 | 1.90 | United States | | |
| 8 | RSA | South Africa | 0 | 2 | 0 | | Sarah Sjöström | 100m | Freestyle | F | 3 | SWE | 52.99 | 1.89 | Sweden | | |
| 9 | SWE | Sweden | 1 | 1 | 1 | | Adam Peaty | 100m | Breaststroke | M | 1 | GBR | 57.13 | 1.75 | Great Britain | | |
| 10 | USA | United States | 1 | 1 | 4 | | Cameron Van der Burgh | 100m | Breaststroke | M | 2 | RSA | 58.69 | 1.70 | South Africa | | |
| 11 | | | | | | | Codey Miller | 100m | Breaststroke | M | 3 | USA | 58.87 | 1.70 | United States | | |
| 12 | | | | | | | Sarah Sjöström | 100m | Butterfly | F | 1 | SWE | 55.48 | 1.80 | Sweden | | |
| 13 | | | | | | | Penny Oleksiak | 100m | Butterfly | F | 2 | CAN | 56.46 | 1.77 | Canada | | |
| 14 | | | | | | | Dana Vollmer | 100m | Butterfly | F | 3 | USA | 56.63 | 1.77 | United States | | |
| 15 | | | | | | | Yang Sun | 200m | Freestyle | M | 1 | CHN | 104.65 | 1.91 | China | | |
| 16 | | | | | | | Chad Le Clos | 200m | Freestyle | M | 2 | RSA | 105.20 | 1.90 | South Africa | | |
| 17 | | | | | | | Conor Dwyer | 200m | Freestyle | M | 3 | USA | 105.23 | 1.90 | United States | | |
| 18 | | | | | | | Katie Ledecky | 200m | Freestyle | F | 1 | USA | 113.73 | 1.76 | United States | | |
| 19 | | | | | | | Sarah Sjöström | 200m | Freestyle | F | 2 | SWE | 114.08 | 1.75 | Sweden | | |
| 20 | | | | | | | Emma McKeon | 200m | Freestyle | F | 3 | AUS | 114.92 | 1.74 | Australia | | |

- (a) Write down the formula which should go in cell D3 to calculate the number of gold medals that Australia won in the events. The formula should be easily replicable to show the number of gold medals won by the other countries.

The formula should work even if the swimmer details are changed.

= [6]

You can use the space below for any working you need.

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