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Oxford Cambridge and RSA

Wednesday 9 January 2019 – Afternoon

LEVEL 1/2 CAMBRIDGE NATIONAL CERTIFICATE IN INFORMATION TECHNOLOGIES

R012/01 Understanding tools, techniques, methods, and processes for technological problems

No additional materials required for this Question Paper.

Duration: 1 hour 45 minutes

First name	
Last name	
Centre number	
Candidate number	

INSTRUCTIONS
- Use black ink.
- Complete the boxes above with your name, centre number and candidate number.
- Answer **all** the questions.
- Write your answer to each question in the space provided.
- Additional paper may be used if required but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the barcodes.

INFORMATION
- The total mark for this paper is **80**.
- The marks for each question are shown in brackets **[ ]**.
- This document consists of **16** pages.

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Turn over

2

Answer **all** the questions.

SECTION A

1   What is the first phase of the project life cycle?

    .... **[1]**

2   A client needs to have a deliverable product by the end of March.

    What type of constraint is this?

    .... **[1]**

3   **Fig. 1** shows what happens to data collected from a survey.

| Collect data | → | Add structure | → | Add context | = | X |
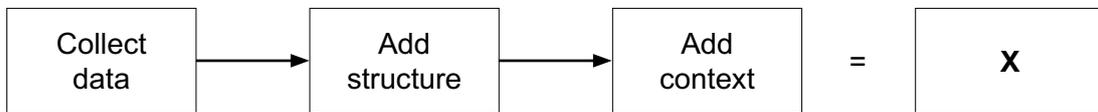
Fig. 1

    What is **X**?

    .... **[1]**

4   Identify and describe **one** use of wearable technology in the healthcare sector.

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    ....

    ....

    .... **[2]**

5   A hacker has maliciously stolen data from you.

    What type of 'hat' hacking is this?

    .... **[1]**

6   The computer system in a business has been attacked and sales figures have been changed.

    What type of cyber security attack is this?

    .... **[1]**

7   What is meant by the term 'secure backup of data'?

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.... **[2]**

8   A magnetic wipe is one method used to securely destroy data on a hard drive.

Identify **one other** secure destruction method that could be used.

.... **[1]**

4

SECTION B

Read the scenario below. Questions 9–13 relate to this scenario.

A sports clothing brand, Westwood Sportswear (WS), has set up a project team to introduce new information technologies to its clothing range and shops by the end of the year.

The project team has presented the following ideas:

- QR codes to be placed on all sewn-in clothing labels. The QR codes will give customers access to data about each item of clothing by reading the QR code on their smartphone. This will be data such as sizing information, colour range and materials used.

- QR workstations to be set up in every shop. Staff will use these workstations to scan and read QR codes for customers without a smartphone.

- WS mobile app to be developed to send electronic discount vouchers to customers when they visit a shop. Customers will need to enter personal details to access the mobile app.

It has been agreed that the project team will take these ideas forward and implement them.

9 The project team will use different planning tools, including a PERT chart, which shows the critical path.

(a) Describe the purpose of a critical path.

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.... **[3]**

(b) Identify **three** components of a PERT chart.

1 ....

2 ....

3 ....
[3]

5

(c) Explain **one** disadvantage **to the project team** of using a PERT chart.

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.... **[2]**

10 QR codes will be placed on all sewn-in clothing labels.

(a) Explain **one** disadvantage **to the store** of having QR codes on all clothing labels.

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.... **[2]**

(b) Explain **one** disadvantage **to customers** of having QR codes on all clothing labels.

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.... **[2]**

Turn over

11 Staff will use the QR workstations to scan and read QR codes.

(a) Identify and describe **one** piece of legislation that relates to the **software** installed on the QR workstations.

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.... **[3]**

(b) Identify and describe **one** piece of legislation that relates to the **data** stored on the QR workstations.

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.... **[3]**

12 Customers will need to enter personal details to access the mobile app.

Explain **two** ways current IT legislation prevents the moral and ethical misuse of this information.

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2 ....

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                                                                                                                             [4]

13 Identify **two** outputs of the execution phase of this project.

1 ....

2 ....

[2]

Turn over

8

SECTION C

Read the scenario below. Questions 14–16 relate to this scenario.

A large take-away pizza company, Progress Pizzas (PP), has over 100 branches across the UK. Each branch prepares, bakes and delivers pizza orders to customers.

Customers can use the PP mobile app to view the menu, place their order and receive delivery time updates.

Delivery drivers use cars and motorbikes to deliver the pizzas to customers. PP collects data about each driver's driving by using sensors on the vehicles. This data is shared with the motor insurance company and helps reduce insurance costs.

Data from each branch is collected monthly and sent to Head Office. This data must include the number of orders, average cost of orders, the average delivery time and other statistical information.

14 Customers can use the PP mobile app to view the menu, place their order and receive delivery time updates.

Discuss the advantages **to PP** of using the mobile app to share information with customers. **[8]**

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15 Describe **one** way that sensors could be used to collect data on the quality of each driver's driving.

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.... **[2]**

16 The Data Manager at Head Office is responsible for combining all of the data received from each branch. This data is then shared with senior managers as a presentation at their monthly meeting.

  (a) Identify **one** piece of hardware that could be used to share the presentation with the senior managers.

  .... **[1]**

  (b) Identify **one** suitable type of software that could be used by the Data Manager to combine the monthly data for use in the presentation to the senior managers. Justify your response.

  Type of software ....

  Justification ....

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  [5]

SECTION D

Read the scenario below. Questions 17–19 relate to this scenario.

Progress Westwood Data (PWD) is a data collection and storage company. It provides support for the education sector in the UK.

Many schools use PWD to gather useful market research information for them to use.

PWD uses online surveys to obtain feedback from staff and pupils about:

- the quality of canteen food;
- school transport.

PWD also collects small data sets from individual schools covering exam performance, attendance, pupil numbers on roll, etc. It combines these small data sets into bigger data sets that can be shared with the Government Department for Education.

17 PWD is a data collection and storage company.

Define what is meant by the term 'data'.

.... **[1]**

18 PWD collects data for schools using a variety of methods including online surveys.

(a) Identify **one other** data collection method PWD could use when carrying out market research.

.... **[1]**

(b) Explain **one** reason why validity is important when PWD collects data for schools.

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.... **[2]**

19 The Government Department for Education uses the data sets created by PWD to produce national statistics on school performance outcomes and pupil numbers per region per year group.

Discuss the benefits and drawbacks of using data sets to generate these national statistics.

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Turn over

12

Read the scenario below. Questions 20–21 relate to this scenario.

Progress Westwood Data (PWD) handles a lot of sensitive personal and business data for its customers. It wants to check that it is following current IT legislation and that its cyber security prevention measures are up-to-date.

The IT Manager is responsible for cyber security and he is leading a project to review these areas.

20 The IT Manager will use a Gantt chart for planning this project rather than a task list.

(a) Evaluate this decision.

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.... **[6]**

PWD uses a variety of logical prevention measures to reduce cyber security risks.

(b) Describe what is meant by a logical prevention measure.

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.... **[2]**

(c) At the end of the project, the IT Manager produces a word-processed report on how well PWD is following current IT legislation.

The report contains tables showing the results of the research carried out by the project team.

Identify and explain **one** advantage and **one** disadvantage of using tables to present information in this report.

Advantage: ....

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Disadvantage: ....

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[6]

21 PWD wants all of its employees to act in an ethical and moral way when handling data. The IT Manager has been asked to design a poster showing employees how to handle data in an ethical and moral way.

(i) Suggest **one** instruction that could be placed on this poster.

.... **[1]**

(ii) Identify **one** demographic factor that should be considered when designing this poster.

.... **[1]**

END OF QUESTION PAPER

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