OCR
Oxford Cambridge and RSA

Level 3 Cambridge Technical in IT
05838/05839/05840/05841/05842/05877

Unit 1: Fundamentals of IT

Monday 8 January 2018 – Morning
Time allowed: 1 hour 30 minutes

You must have:
• a calculator

First Name		Last Name	

Centre Number		Candidate Number	

Date of Birth	D	D	M	M	Y	Y	Y	Y

INSTRUCTIONS
• Use black ink.
• Complete the boxes above with your name, centre number, candidate number and date of birth.
• Answer **all** the questions.
• Write your answer to each question in the space provided.
• If additional answer space is required, you should use the lined page(s) at the end of this booklet. The question number(s) must be clearly shown.

INFORMATION
• The total mark for this paper is **80**.
• The marks for each question are shown in brackets **[ ]**.
• Quality of extended response will be assessed in questions marked with an asterisk (*).
• This document consists of **16** pages.

FOR EXAMINER USE ONLY	
Question No	Mark
Section A: 1-15	/15
Section B: 16	/15
17	/16
18	/10
19	/7
20	/10
21	/7
Total	**/80**

C380/1801/10

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Turn over

SECTION A

Answer **all** the questions.

Put a tick (✓) in the box next to the **one** correct answer for each question.

1   Which of the following **best** describes the purpose of a processor component in a computer?

   (a)   To control user access to the data on the computer.

   (b)   To manage the main functions and operations of the computer.

   (c)   To display calculations.

   (d)   To store data in the computer.

[1]

2   How do quantum computer systems differ from traditional computer systems?

   (a)   Quantum computers do not rely on binary logic.

   (b)   Quantum computers do not require secondary storage.

   (c)   Quantum computers use Open Source Operating Systems.

   (d)   Quantum computers utilise anti-static to minimise energy consumption.

[1]

3   Which of the following should be considered when setting up a microwave network?

   (a)   All devices on the network must be in line of sight.

   (b)   Microwaves can only be transmitted using a digital format.

   (c)   Microwave nodes should not be set up in areas of dense population.

   (d)   Microwave signals are not effective beyond a range of 1800 metres.

[1]

4 How many bits are included in a nibble?

(a) 1

(b) 2

(c) 4

(d) 8

[1]

5 Which of the following may be a disadvantage to a business of using Open Source software?

(a) Competitors may be using the same software.

(b) It may include lots of features.

(c) There may be an increased security risk as the source code can be edited by others.

(d) The business is not tied into one vendor's system.

[1]

6 Which of the following is an advantage of a multiprocessor operating system?

(a) Every task is performed by the same processor.

(b) Multiprocessor systems are easier to design.

(c) Failure in one processor will result in complete system failure.

(d) The throughput of data is usually greater than a single processor system.

[1]

Turn over

7 Which of the following is **not** a feature of a Personal Assistant system?

(a) Plays music.

(b) Personalised to different voices.

(c) Provides news and sports updates.

(d) Creates a to-do list.

[1]

8 Which of the following is the **most** likely cause of a slow running application on a computer?

(a) Insufficient Active Directory capacity.

(b) Insufficient ports on the motherboard.

(c) Insufficient ROM capacity.

(d) Insufficient RAM capacity.

[1]

9 Which of the following services is **not** provided by the User Data Protocol (UDP)?

(a) Checksum capability to check on package delivery.

(b) Packet transmission.

(c) Packet retransmission.

(d) Providing port numbers.

[1]

10 Which of the following is an example of a physical method of improving the security of information?

(a) Defragmenting the main server hard drive. ☐

(b) Installing anti-virus software. ☐

(c) Locking server room doors. ☐

(d) Backing up data. ☐

[1]

11 Which of the following attempts to gain information does **not** use social engineering?

(a) "Hi, I am new and don't understand how to access the portal, Andrea says I need a token code but I don't know what this is." ☐

(b) "Hi, I am not at work at the moment, but have been locked out of my machine. Could you reset my password please so I can complete this report for the boss?" ☐

(c) "The boss has asked for this information. Do you really want to upset her?" ☐

(d) "What is the security code needed to access the Web Server?" ☐

[1]

12 Which of the following is an advantage of using RFID technology rather than a barcode to track packages?

(a) Packages do not need to be in line of sight of the reader to be identified. ☐

(b) RFID tags do not need a source of power. ☐

(c) RFID technology does not need specialist equipment to identify packages. ☐

(d) Metal interferes with the RFID signals. ☐

[1]

Turn over

13 Which of the following **best** describes **one** reason why privacy screens are attached to monitors?

(a) To comply with the Copyright, Design and Patents Act 1988.

(b) To improve the working conditions of staff.

(c) To protect data and information from being seen by unauthorised viewers.

(d) To reduce glare on the screens.

[1]

14 Which of the following **best** describes how overwriting old data protects it from being accessed.

(a) All data held on the hard disc is deleted.

(b) The data held in each bit on the hard disc is replaced with fresh data.

(c) The data is encrypted so that it cannot be accessed.

(d) The file names are changed so that the data cannot be found.

[1]

15 Which of the following is a weakness of using a firewall to protect a website?

(a) Does not prevent an authorised user from using the system maliciously.

(b) The firewall restricts access only to those who have previously been on the website.

(c) The firewall will only allow data to flow from the viewer's machine to the website.

(d) The firewall will only allow data to flow from the website to the viewer's machine.

[1]

Section A Total:
(for examiner use only)

SECTION B

Answer **all** the questions.

Progress Jewellers is a jewellery company, with stores throughout the UK. Each store is connected to the company's data centres in Manchester and London via a leased line connection. A backup link is available via an ADSL connection.

Each store has Point of Sale (POS) terminals, connected to a wired local area network (LAN), which the staff use to serve customers as well as report sales to the Head Office. A separate wireless network is provided for customers use while they are in the store.

IT support is provided by the company from its data centre in London. Store staff can email or call the dedicated IT support number when needed.

16 POS terminals in each of the stores feature the same computer components.

(a) Describe the purpose of the following components:

Solid state drive ....

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Graphics card ....

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[4]

(b) All POS terminals are connected to a LAN.

Explain **two** reasons why a LAN is used.

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Turn over

As well as a username and password, staff must use a biometric method to access the POS terminals.

(c) Identify **one** biometric method to control access to the POS terminals.

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(d) Explain **two** advantages and **one** disadvantage of using biometric methods to control access to the POS terminals.

Advantage 1 ....

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Advantage 2 ....

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Disadvantage ....

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[6]

17 IT support staff for Progress Jewellers are based at the data centre in London. To get IT support, store staff can use email or a dedicated phone number.

(a) Explain **two** advantages and **one** disadvantage of using email to obtain IT support.

Advantage 1 ....

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Advantage 2 ....

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Disadvantage ....

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[6]

(b) Describe **two** steps IT support staff could take when troubleshooting IT issues.

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(c) All IT support staff at Progress Jewellers are required to have industry certifications.

Explain why Progress Jewellers requires its IT support staff to have industry certifications.

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Turn over

(d) Explain **one** way that the Progress Jewellers IT support staff can demonstrate that they are ready for work.

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18* Progress Jewellers is considering having separate servers to store files and provide email services.

Explain why Progress Jewellers would use both a file server and a mail server.

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19 Each store is connected to the company's data centres in Manchester and London via a leased line connection with a backup link using an ADSL connection.

(a) Identify and describe **two** pieces of hardware needed to create this wide area network (WAN) connection.

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[4]

Turn over

(b) Progress Jewellers must consider threats to data when it is transmitted over the WAN.

Other than social engineering, identify and describe **one** threat to Progress Jewellers' data when it is transmitted over the WAN.

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20* Explain why Progress Jewellers would use bespoke software to manage its business.

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21 Progress Jewellers uses a hypervisor to run multiple servers on a single physical server.

    (a) (i) Identify the name for this kind of technology.

        ....**[1]**

      (ii) Explain **two** advantages and **one** disadvantage of using this kind of technology.

        Advantage 1 ....

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        Advantage 2 ....

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        Disadvantage ....

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        [6]

END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional answer space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s) – for example 18 or 20.

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