

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

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Pearson Edexcel International Advanced Level

Thursday 9 May 2024

Afternoon (Time: 2 hours)

Paper
reference

WIT11/01

Information Technology

International Advanced Subsidiary/Advanced Level

UNIT 1

You do not need any other materials.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*
- Calculators are **not** allowed.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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Answer ALL questions. Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 A local government agency uses information technology in its operations.

(a) Employees can work from the office, from home or on the move.

(i) Employees store and access files using a local area network (LAN).

Identify the type of storage used.

(1)

A HDMI

B NAS

C RAID

D SSID

(ii) Employees can work from home or on the move using an online environment with access to the internet.

They can store and access files in the cloud.

State **two other** ways employees can work together to collaborate in an online environment.

(2)

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(b) Employees are encouraged to be members of professional online communities.

Give **one** positive and **one** negative impact of employees using online communities during work time.

(2)

Positive

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Negative

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(c) The local government agency is concerned about the moral and ethical issues associated with the use of information technology.

(i) It collects and stores data about people.

Explain **one** reason people may be concerned that the agency collects and stores data about them.

(2)

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(ii) Inclusion is an ethical concern associated with the use of information technology systems.

Describe what is meant by the term **inclusion** in the context of information technology systems.

(2)

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(d) The local government agency uses the internet and the world wide web to carry out its business.

(i) Complete the table to identify the network metric described in the first column.

(4)

Description	Network metric
A measure of the number of bits that are transferred incorrectly	
The time delay between a data packet leaving the source device and arriving at the destination	
A measure of the capacity of a communications channel	
The variation in times between packets arriving at the destination	

(ii) Identify which one of these is a feature of the world wide web.

(1)

- A** E-mail
- B** Routers
- C** TCP/IP
- D** URLs

(Total for Question 1 = 14 marks)



2 Organisations connect devices to networks.

Networks are protected by a variety of security measures.

- (a) Complete the table to identify the encryption technique that matches each description.

(2)

Description	Encryption technique
The sender and the receiver use a shared key to encrypt and decrypt a message.	
The sender uses a public key to encrypt a message. The receiver uses a private key to decrypt the message.	

- (b) Some anti-malware software uses a database of known malware signatures to identify malicious software.

Describe **one other** way anti-malware software could identify malicious software.

(2)

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(c) The first floor of a building has a meeting room, a break room and a server room.

Wireless connectivity is available in the meeting room, but not in the break room.

The printer does not support a wireless connection.

The devices use a variety of connectivity protocols.

Complete the diagram on the next page by adding:

- a single line between devices that communicate with each other
- a label on the line stating the network communication protocol used.

(10)



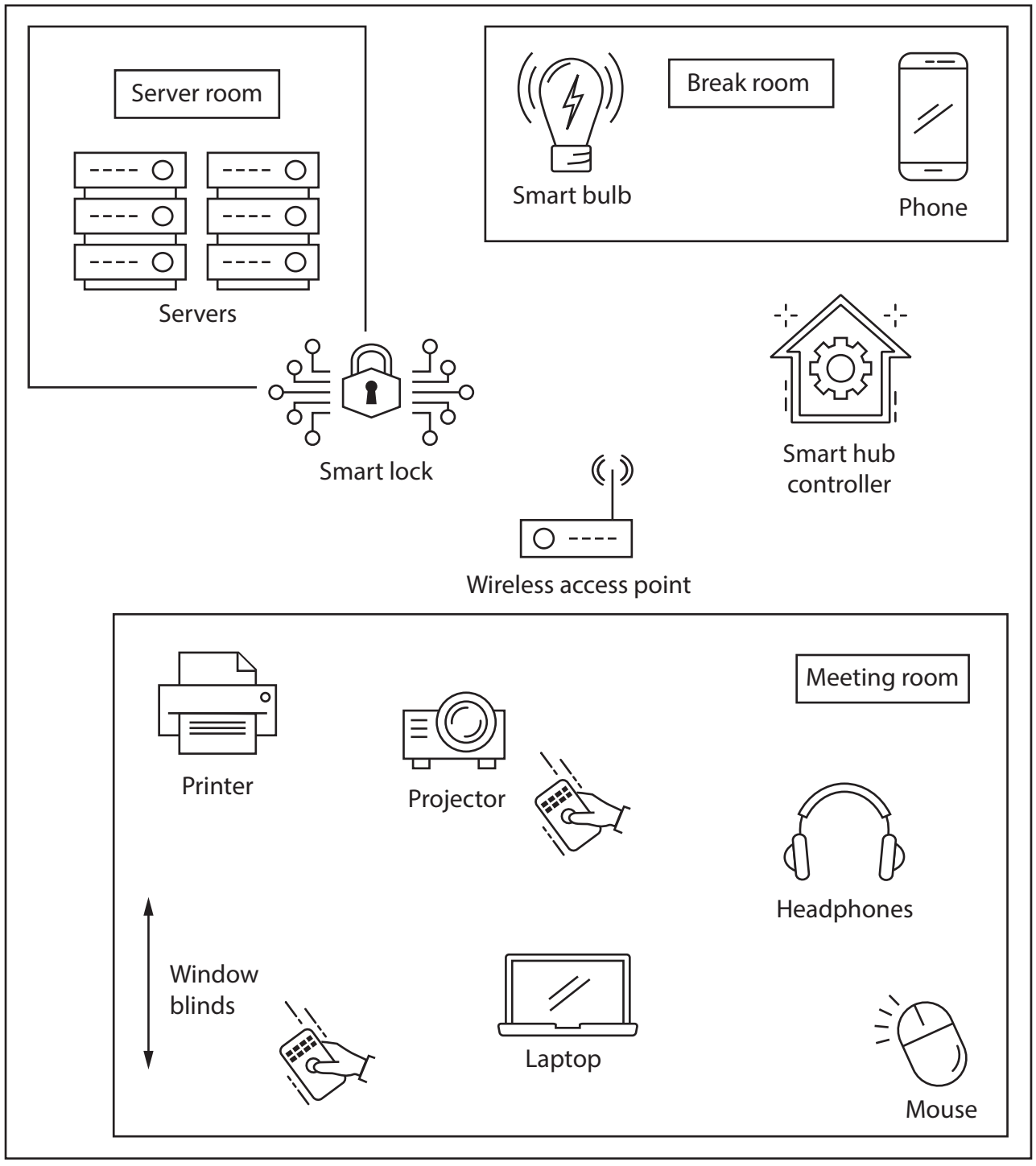
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Building



(d) After meeting with a client, an accountant rests in a local park.

She has a smartphone and laptop with her.

She needs to store her meeting notes in the cloud.

The notes are on her laptop.

Describe how she can use her devices to store her meeting notes in the cloud.

(2)

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(Total for Question 2 = 16 marks)



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QUESTION 3 BEGINS ON THE NEXT PAGE.



3 Bookstores use networks and software applications.

(a) **Figure 1** shows partial tables from the database belonging to the owner of two bookstores.

tbl_employee

empNum	address	postCode	rate
594998	Next Town	NT12345	12.65
721231	Home City	HC87612	13.82
838485	Next Town	NT12346	12.75

tbl_store

storeNum	address	postCode
73	The Mall	TM34954
45	High Street	HS79150

tbl_shift

store	date	start	end	employee
45	15-03-2023	09:30	15:00	721231
73	19-05-2023	11:00	14:00	594998
73	19-05-2023	18:00	21:00	594998
73	19-05-2023	11:00	19:00	838485

Figure 1

(i) Complete the table to give the field names of the keys described.

(4)

Table	Key	Field names
tbl_employee	Primary	
tbl_store	Primary	
tbl_shift	Foreign	
tbl_shift	Composite	



(ii) The empNum field in tbl_employee must be 6 digits long.

One possible value for empNum is 062833

Explain **one** reason the empNum field cannot be assigned a data type of integer.

(2)

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(b) **Figure 2** shows a different set of tables from the database belonging to the owner of two bookstores.

tbl_book

bookID	title	authorLast	authorFirst	published	inStock	price
16093	Car of Dreams	Carter	Catherine	17/04/1961	2	24.56
19531	Delight and Angst	Rock	Ivan	28/01/1961	3	17.82
23714	The Plan	Carter	Catherine	21/12/1964	3	10.55
24224	Texas	Mitchel	James	14/02/1966	1	21.48
25280	Six Days in July	Knott	Franklin	28/09/1965	5	25.75
27310	The Set	Salter	Joseph	14/07/1965	7	15.67
30151	A Lampshade	Fury	Andrew	15/03/1965	2	26.39
41118	The Beginning	Mitchel	James	22/10/1962	5	21.65
50777	Frank and Zena	Salter	Joseph	18/01/1961	4	19.34
84713	Devise and Deny	Fury	Andrew	13/12/1963	2	15.99

tbl_dvd

dvdID	title	published	inStock	price
115521	Texas	15/02/1999	4	13.99
173841	A Floor Lamp	21/11/2002	4	15.99
191011	The Plan	17/10/2001	5	13.99
240611	The Individual	31/01/2005	1	15.99
342189	Joy and Sadness	13/06/2001	2	12.99
429071	Car of Dreams	18/12/2005	2	12.99
928022	The Middle	04/06/1999	3	10.99

Figure 2

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(i) Write an SQL statement that returns a set of unique titles available in **one or both** formats.

(2)

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(ii) Write an SQL statement that returns the total number of books published in 1965 or later.

(2)

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(c) A bookstore is located in a smart city.

Explain **one** benefit of a smart city to customers when shopping for books inside the bookstore.

(2)

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(d) The owner of a bookstore needs stock control software.

Discuss the benefits and drawbacks to the bookstore owner of using open source and proprietary software.

(6)

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(Total for Question 3 = 18 marks)



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QUESTION 4 BEGINS ON THE NEXT PAGE.



4 The construction industry uses information technology (IT) systems.

(a) All IT systems must be fit for purpose before they are released.

Give **two** measures of fitness for purpose of an IT system.

(2)

1

2

(b) A carpenter is a member of an online professional community.

The carpenter logs onto the community website.

The carpenter sees a targeted advertisement for 50% off nails at a shop near the carpenter's location.

Describe the process that delivers the advertisement.

(2)

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(c) A plumber uses a search engine to find a local firm renting small diggers.
The search results are ordered.
The top search results are shown in **Figure 3**.

Tool Place Hire – Same Day Collection	Ad
Operating for over 40 years. Branches across the north east. Check out our website.	
Top Brands at Hyre Tools – Click & Collect	Ad
We offer more than tools. See our top brand offers. Paint now 15% off.	

Figure 3

Explain **one** way this form of monetisation works.

(2)

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- (d) An e-commerce company rents equipment to the construction trade via its website.

A customer must register before renting equipment.

Figure 4 shows the registration page.

Registration form

First name:

Last name:

Email:

Figure 4

A blank registration form is displayed.

The customer completes the form by adding first name, last name and email address.

Pressing the cancel button ends the registration process and closes the form.

Pressing the submit button submits the form for validation and processing.

If there is an error on the form:

- an error message is shown
- the customer can try again.

If the email address is already registered:

- an error message is shown
- the email address is not accepted and the customer can try again.

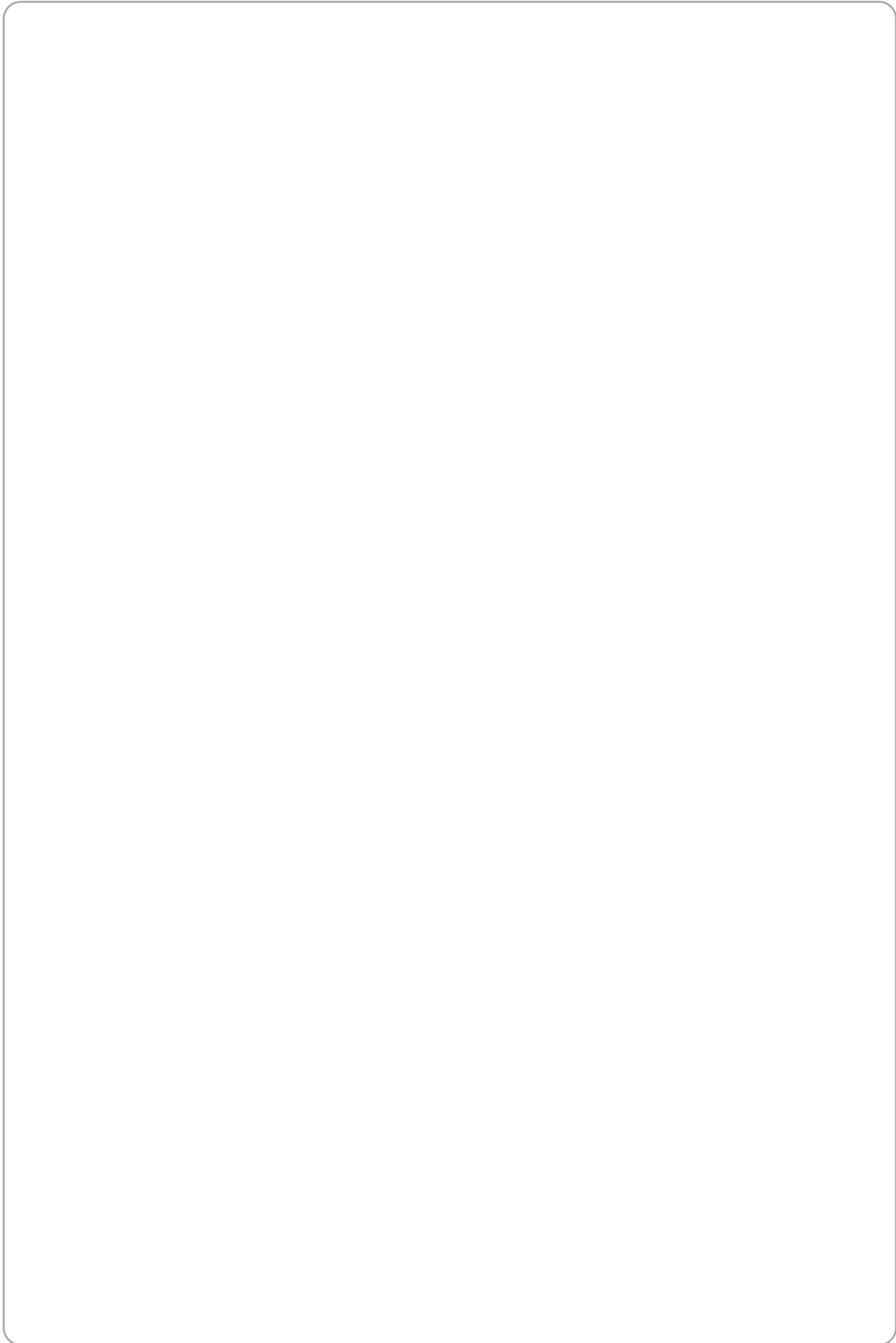
If there is not an error on the form:

- a new registration record is stored on the company database
- a unique registration number is generated for the new customer
- the customer is shown the unique registration number.



Draw a flowchart, using the correct symbols, to show the process of registration on the website.

(6)



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- (e) A local equipment hire company keeps information about customers, stock items and rental transactions.

Alice is a customer.

She wants to know how much she owes.

She provides her customer number to the company.

The company generates a list of unpaid rentals.

The list is shown in **Figure 5**.

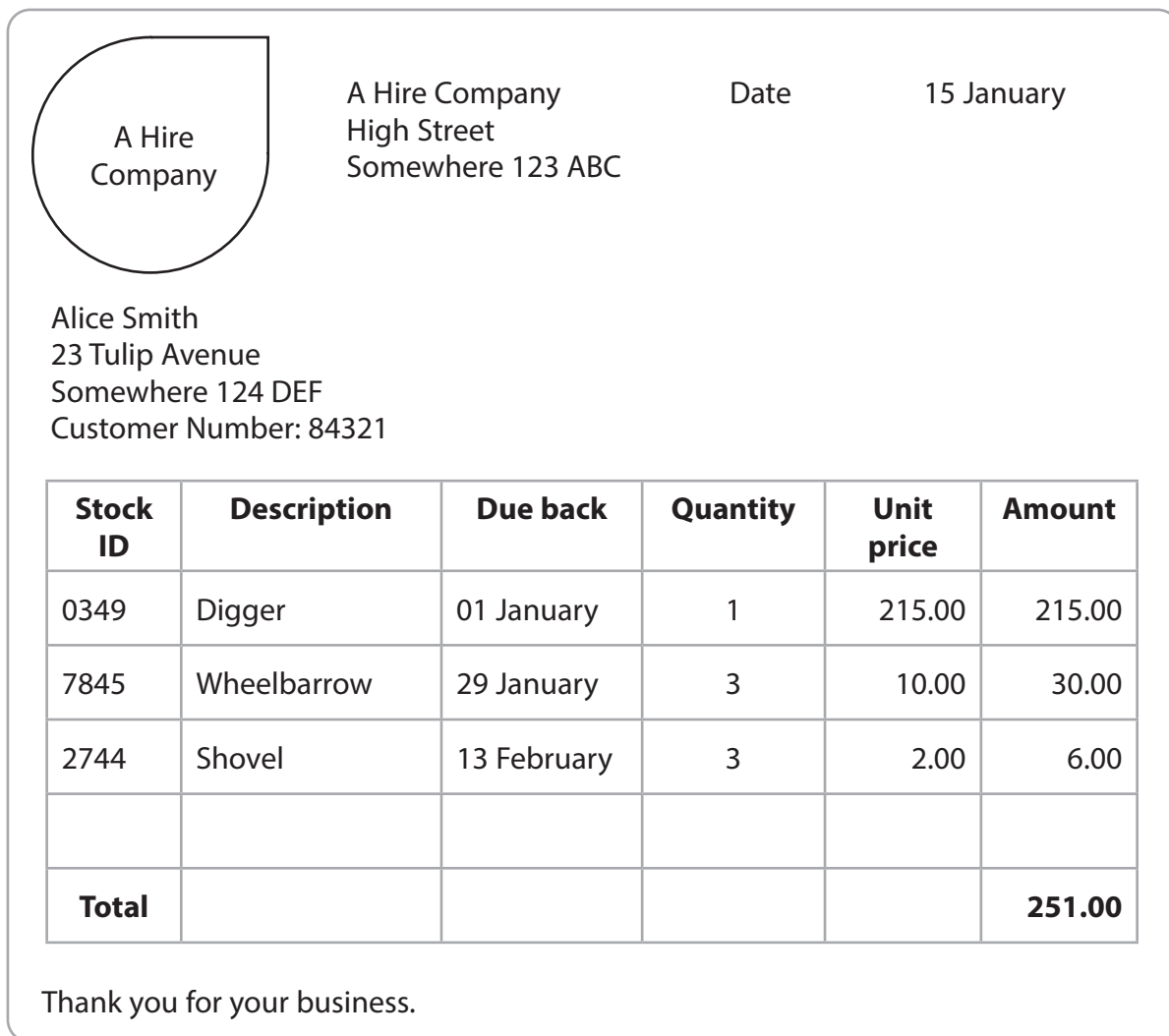
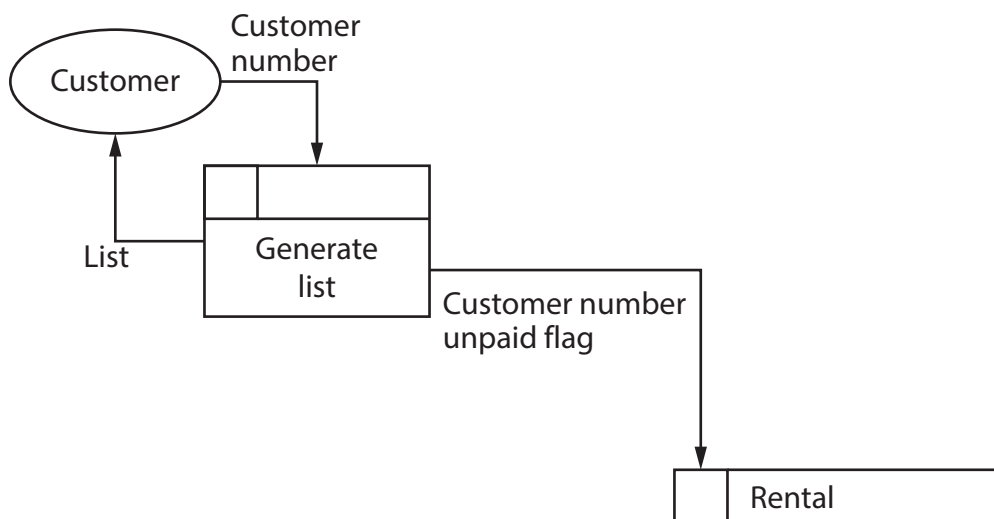


Figure 5



Complete the dataflow diagram to generate the list by adding data stores and labelled data flows.

(4)



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5 A company is developing a digital learning device for a child, aged three to five years.

(a) The device has a plastic case and a screen.

It has printed circuit boards inside the case.

(i) The increased level of carbon dioxide in the atmosphere due to energy production is one negative environmental impact of **constructing** digital devices.

Explain **one other negative** environmental impact of **constructing** digital devices.

(2)

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(ii) The increased level of carbon dioxide in the atmosphere due to energy production is one negative environmental impact of the **disposal** of digital devices.

Explain **one other negative** environmental impact of the **disposal** of digital devices.

(2)

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(b) The learning device for a child, aged three to five years, is a dedicated computer, not a general-purpose computer. The design of the device is not yet finalised.

Evaluate the benefits and drawbacks of including a variety of digital technologies in the device.

You could consider:

- the use of biometrics
- the use of a touchscreen
- the amount of memory
- the amount of secondary storage
- the power source
- the use of miniaturisation.

(12)

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(Total for Question 5 = 16 marks)

TOTAL FOR PAPER = 80 MARKS

