

Paper Reference(s) WIT13/01
Pearson Edexcel International
Advanced Level

Total Marks

Information Technology
International Advanced Level
UNIT 3

Monday 5 June 2023 – Afternoon

Time: 2 hours

In the boxes below, write your name, centre number and candidate number.

Surname					
Other names					
Centre Number					
Candidate Number					

Y72605A



Pearson

YOU MUST HAVE

Nil

YOU WILL BE GIVEN

Diagram Booklet

INSTRUCTIONS

Answer ALL questions.

Answer the questions in the spaces provided in this Question Paper or in the separate Diagram Booklet – 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.

(continued on the next page)

Turn over

INFORMATION continued.

Calculators are NOT allowed.

There may be spare copies of some diagrams.

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.

Answer ALL questions in this section.

Write your answers in the spaces provided.

1 Manufacturers use IT systems to create new products.

(a) Project managers use many tools, such as SMART targets, to do their jobs.

**(i) Name TWO OTHER tools that are used in project management.
(2 marks)**

1 _____

2 _____

1(a) continued.

**(ii) State the meaning of the A in SMART targets.
(1 mark)**

**(iii) Give ONE reason for using SMART targets to define project outcomes.
(1 mark)**

(continued on the next page)

1 continued.

(b) Look at the diagram for Question 1(b) in the Diagram Booklet.

Complete the diagram to show the steps of the waterfall method of systems development.

The first and last steps are shown for you.

(2 marks)

(c) A team of developers is working on a new software product.

The team uses computers on a local network to develop the product.

However, the finished product will be installed and run on cloud servers.

Explain ONE advantage of using containerisation to deploy the finished product to the cloud.

(2 marks)

Answer space continues on the next page.

Turn over

1(c) continued.

(continued on the next page)

1 continued.

(d) An aeroplane manufacturer is considering developing a virtual reality flight trainer for its aeroplanes.

**Discuss the benefits and drawbacks of using virtual reality in the flight trainer.
(6 marks)**

Answer space continues on the next 3 pages.

Turn over

1(d) continued.

Turn over

1(d) continued.

Turn over

1(d) continued.

(Total for Question 1 = 14 marks)

2 Retail stores use databases.

- (a) Normalising a relational database reduces data redundancy because it removes duplicate data.**

**Explain ONE OTHER benefit of normalising a relational database.
(2 marks)**

(continued on the next page)

2 continued.

(b) Look at the table for Question 2(b)(i) in the Diagram Booklet. A water sports store rents canoes, paddleboards and kayaks to customers.

The store uses a database.

(i) The database has rules to ensure that any data entered is valid.

Complete the table to name the type of validation used to identify invalid data.

(2 marks)

(continued on the next page)

2(b) continued.

- (ii) Look at the diagram for Question 2(b)(ii) in the Diagram Booklet. The water sports equipment rented to customers is regularly inspected by qualified technicians.**

Complete the diagram to show a logical model of the database.

You MUST include:

- two additional entities**
 - four relationships and relationship types.**
- (6 marks)**

(Total for Question 2 = 10 marks)

3 Encryption is used to protect data that is being transmitted over the internet.

(a) One type of encryption relies on a certificate.

(i) A certificate includes general items, such as the date of issue.

Give ONE non-general item found in a certificate.

(1 mark)

(continued on the next page)

3(a) continued.

- (ii) Describe the role of a Certificate Authority in the use of certificate-based encryption.
(2 marks)**

(continued on the next page)

3 continued.

(b) Look at the diagram for Question 3(b) in the Diagram Booklet. Symmetric and asymmetric are two types of encryption.

Alice sends a message to Bob using symmetric encryption.

Bob sends a message to Alice using asymmetric encryption.

Complete the diagram to show the steps required for the messages to be exchanged.

**You MUST include plaintext, ciphertext and types of keys.
(9 marks)**

(Total for Question 3 = 12 marks)

4 A retailer has stores all over the country.

(a) The retailer has a customer loyalty scheme.

Customer data is stored on the customer relationship management (CRM) system.

Look at FIGURE 1 for Question 4(a) in the Diagram Booklet. It shows some of the fields used in the CRM system.

The customer loyalty scheme could use fields 1 and 3 to identify a customer's favourite items, so that the customer can be sent a voucher.

(continued on the next page)

4(a) continued.

- (i) Explain ONE OTHER way that the CUSTOMER SERVICES DEPARTMENT could use TWO of the fields used in the CRM system.**

**You MUST include the field numbers in your explanation.
(2 marks)**

(continued on the next page)

Turn over

4(a) continued.

- (ii) Explain ONE way that the MARKETING DEPARTMENT could use THREE of the fields used in the CRM system.**

**You MUST include the field numbers in your explanation.
(2 marks)**

(continued on the next page)

4 continued.

(b) Look at the table for Question 4(b) in the Diagram Booklet. The retailer plans to replace its existing IT systems.

The systems being replaced are accounting, record keeping, purchasing and electronic points of sale.

The retailer is planning ways to make the changeover from existing systems to new systems.

**Complete the table to give the type of changeover method in each case.
(4 marks)**

(continued on the next page)

4 continued.

(c) The retailer is reviewing its IT governance and policies.

**Discuss the need for and features of risk management and disaster recovery policies.
(6 marks)**

Answer space continues on the next 3 pages.

Turn over

4(c) continued.

Turn over

4(c) continued.

Turn over

4(c) continued.

(Total for Question 4 = 14 marks)

5 A store sells items used by swimmers.

The store currently keeps records of sales in a spreadsheet.

Look at FIGURE 2 for Question 5 in the Diagram Booklet. It shows some of the most recent orders.

Manufacturers are listed in brackets in the stock_bought column.

Look at the blank diagram for Question 5 in the Diagram Booklet. The store wants to create a database to store the data.

Create tables showing the database in third normal form.

Primary keys MUST be underlined.

Foreign keys MUST be indicated by an asterisk *.

**Do NOT include any data in the tables.
(12 marks)**

(Total for Question 5 = 12 marks)

6 A conference centre is located in a big city.

It has meeting rooms, retail space, a hotel and an entertainment complex that includes a cinema and bowling alley.

(a) Visitors to the centre have access to information points to find their way around the conference centre.

Each information point has a display, a keyboard and a mouse.

Users can search for place names, product types and other amenities.

(continued on the next page)

6(a) continued.

Look at the blank diagram for Question 6(a) in the Diagram Booklet. Draw a diagram in the space provided on the next page to show a suitable interface design for an information point.

You MUST include:

- **at least two windows**
- **at least one icon**
- **at least one menu**
- **one pointer**
- **labels to identify a window, an icon, a menu and a pointer.**

**Do NOT indicate colours or fonts.
(6 marks)**

(continued on the next page)

6 continued.

- (b) The conference centre's hotel allows guests to access movies, sports and their accounts using the TV and remote control in their rooms.**

Look at FIGURE 3 for Question 6(b) in the Diagram Booklet. It shows designs for three of the required screens.

Evaluate the designs with respect to four rules of interface design.

You should consider:

- Rule 1: Strive for consistency**
- Rule 2: Seek universal usability**
- Rule 3: Offer informative feedback**
- Rule 4: Permit easy reversal of actions for the user.**

(12 marks)

Answer space continues on the next 6 pages.

Turn over

6(b) continued.

Turn over

6(b) continued.

Turn over

6(b) continued.

Turn over

6(b) continued.

Turn over

6(b) continued.

Turn over

6(b) continued.

(Total for Question 6 = 18 marks)

TOTAL FOR PAPER = 80 MARKS
END OF PAPER