



Rewarding Learning

ADVANCED
General Certificate of Education
2022 Reserve Series

Centre Number

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Candidate Number

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Digital Technology

Assessment Unit A2 1

assessing

Information Systems



[ADT11]

ADT11

THURSDAY 23 JUNE, MORNING

TIME

2 hours 30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer the questions in the spaces provided.

Do not write outside the boxed area on each page or on blank pages.

You are not permitted to use any calculating aid in this paper.

Complete in black ink only. **Do not write with a gel pen.**

Answer **all six** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 150.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in Questions **1(d)**, **2(d)**, **3(g)**, **4(e)** and **5(d)**.

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24ADT1101

1 (a) LAN, MAN and WAN are three types of network.

(i) Identify a suitable communication medium for each type of network.
You should only use each medium once.

LAN

MAN

WAN

[3]

(ii) Identify the scope of each type of network.

LAN

MAN

WAN

[3]



(b) Describe the purpose of each of the following network resources.

Network card

IP address

[6]





Session

Data Link

[9]



(c) Describe the main features of each of the following communication protocols.

TCP/IP

Ethernet

Bluetooth

[9]



3 Data about invoices is stored in a table as shown below.

InvoiceID	InvoiceDate	CustID	CustName	CustAddress	ProdID	ProdName	Size	Cost	Quantity
23	10/08/22	105	White	Smalltown	103	Frame	Large	£40	1
					102	Frame	Small	£20	3
					107	Glass	Small	£15	2
24	17/08/22	120	Black	Bigtown	102	Frame	Small	£20	2
					103	Frame	Large	£40	2
					106	Glass	Large	£20	1
25	18/08/22	146	Grey	Anytown	103	Frame	Large	£40	3
					104	Mount	Small	£10	2

(a) By referring to this table, explain what is meant by a repeating group.

[2]

(b) By referring to this table, explain each of the following.

Primary key _____

Foreign key _____

[4]



(c) Normalise the data in the table to 1NF.

[2]

(d) Normalise the data in the table to 2NF.

[3]

(e) Normalise the data in the table to 3NF.

[3]

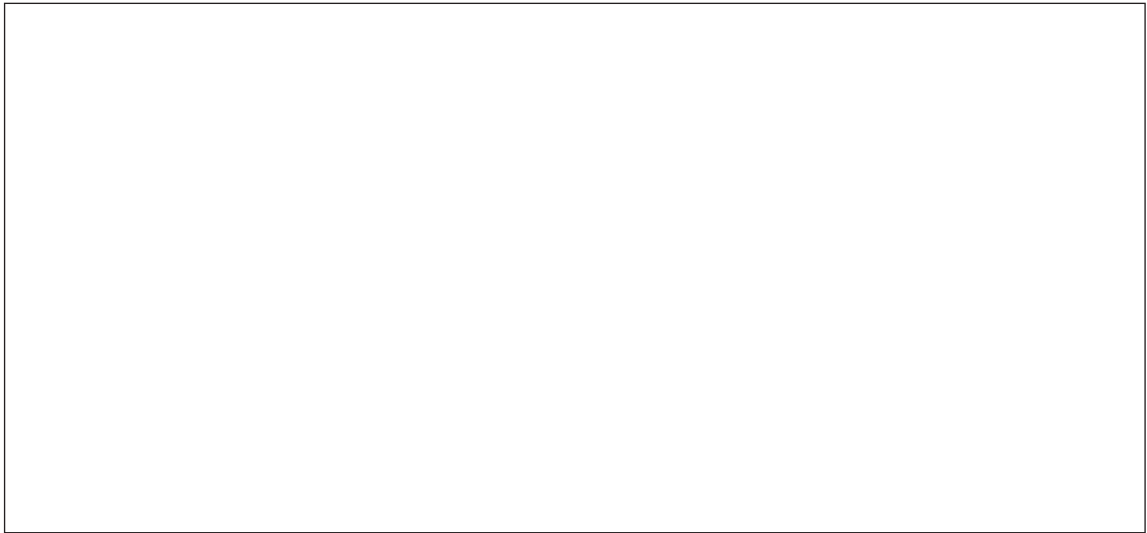
[Turn over

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(f) Produce an entity-relationship (ER) model for the data in the table. It should not include any many-to-many relationships.



[4]



4 The Turing Test was devised by the famous mathematician Alan Turing.

(a) What is the Turing Test designed to discover?

[3]

(b) The Turing Test involves a human, a machine and a player.

State the role of each of the following.

The human

The machine

The player

[3]



An expert system is used to diagnose car engine faults.

(c) Explain each of the following expert system terms.

Shell

Fuzzy logic

Knowledge engineer

[9]

[Turn over



5 Voice recognition is an important application of digital technology.

(a) Explain what is meant by voice recognition.

[3]

(b) Describe two ways in which computers can recognise speech.

1.

2.

[4]



(e) Explain each of the following mobile technology terms.

Mobile phone mast

Cell

Handoff

[6]



(c) Discuss how the use of data mining could threaten the privacy of patients.

[4]

Many organisations make extensive use of cloud computing.

(d) Explain each of the following terms.

Virtualisation

Clustering

[4]



(e) Explain how cloud computing can provide each of the following services.

Email

Backup

[4]

(f) Describe the main ethical considerations which could arise from online censorship.

[4]

THIS IS THE END OF THE QUESTION PAPER



DO NOT WRITE ON THIS PAGE

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Question Number	Marks
1	
2	
3	
4	
5	
6	

Total Marks	
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Examiner Number

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