

**NDTEF/LONDON EXAMINATIONS**

**Information Technology  
GCSE 2708**

**Exam Paper**

**Full Course  
(Higher Tier)**

**JUNE 1999**

Here is part of an advert for a band called **Byte**.

### U.K. Tour Dates

July 1st.	London	Dome	
July 3rd.	Glasgow	Assembly Rooms	
July 4th.	Manchester	Academy	
July 5th.	Birmingham	Centre	
July 6th.	Cardiff	Apollo	

Prices: **£15 & £12** (restricted view)

**Tickets (for all shows) available from Gig Promotions:**  
 by posting a cheque to Gig Promotions, P.O. Box 616 London W1  
 using the credit card telephone hotline (0171) 123 4567

**or:-**  
 in person at the appropriate venue box office.

All tickets are issued on a "first come first served" basis



Tickets can be bought in three different ways: by post, by telephone or at the box office.

**1a** Complete the table below to show the **minimum** information each way would **require** from a customer buying tickets.  
 The first row has been completed.

Information	P.O. Box	Tel. Hotline	Box office
Customer name	✓	✓	
Customer Address			
Customer Tel. No.			
Customer Credit Card No.			
Band Name			
Venue			
Date of concert			
No. of tickets required			
Ticket Price			

○  
9 marks

Fred plans to go to the Manchester concert and wants to make certain of getting a ticket.  
 He uses the credit card hotline.

Details from all the Credit Card Telephone Hotline ticket applications are kept on a computer datafile.

The record produced by the application from Fred is as follows.

Title	Mr
Surname	Green
Firstname	Fred
Address 1	17 Hopefield St.
Address 2	Chester
Address 3	CH12 3HG
Booking ID	040799MANACA15
No. of Tickets bought	1
Credit Card No.	1234 5678 4321 8765
Credit Card Expiry Date	09/99

**1b** State how many **fields** there are in each record. \_\_\_\_\_



1 mark

**1c** State **ONE** field that contains only **text** data. \_\_\_\_\_



1 mark

**1d** State **ONE** field that contains only **numeric** data. \_\_\_\_\_



1 mark

**1e** List the **THREE** items of information that make up the code for the **Booking ID** field.

1 \_\_\_\_\_ 2 \_\_\_\_\_

3 \_\_\_\_\_



3 marks

**1f** Explain how the Booking ID could be validated by a computer program.

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4 marks



**TOTAL**  
max 19

**Question 2**

**Marks**

Fred is aware that the information he has given to Gig Promotions could be used by that company for reasons other than issuing tickets.

The **Data Protection Act (1984)** protects the rights of people with regard to the use of personal information held on computer systems.

**2a** Explain fully what rights this law gives Fred to **see** and to **change** information on the Gig Promotions computer system.

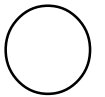
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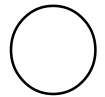
  
4 marks

**2b** Describe **ONE legal** use of the information about Fred.

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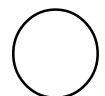
  
2 marks

**2c** Describe **ONE illegal** use of the information about Fred.

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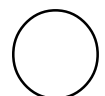
  
2 marks

**2d** Describe **ONE** other way Fred might want Gig Promotions to use his information.

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2 marks

Polly, who ordered tickets by post, received the following letter.



**Gig Productions**  
**PO Box 616**  
**London**  
**W4 5QZ**

Ms Polly Davies  
17 Llandaff St  
Cardiff

April 14 1999

Dear Ms Davies

Further to your application for tickets to see Byte, I am sorry to inform you that the concert at Cardiff Apollo on July 6th has completely sold out.

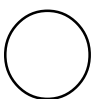
I apologise for any disappointment this may create and I return your cheque.

Yours sincerely

H.P. Sauce  
Bookings Manager

3 State the **NINE** different items of information which have been inserted into the standard letter.

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_
- 4 \_\_\_\_\_
- 5 \_\_\_\_\_
- 6 \_\_\_\_\_
- 7 \_\_\_\_\_
- 8 \_\_\_\_\_
- 9 \_\_\_\_\_



9 marks



**TOTAL**  
**max 9**

**Question 4**

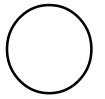
**Marks**

A digital camera was used to take photographs of the band live on stage. Some of the photographs were given **photo touch-up** treatment before being used on a range of T-Shirts.

**4a** State **ONE** reason why this might be necessary.

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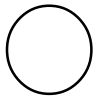
2 marks

**4b** Explain what is meant by **photo touch-up**.

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2 marks

**4c** Describe **TWO** situations where people might be concerned about the ability of modern computers to touch up photographs.

1 \_\_\_\_\_

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2 \_\_\_\_\_

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As well as the digital camera, Byte use a high resolution scanner to input data into their computer system.

**4d** Circle which type of data would be most likely to be input using a scanner and then run through Optical Character Recognition software.

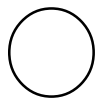
**Text**

**Clipart**

**Graphics**

**Sound**

**Video**

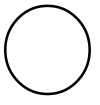


1 mark

4e Give **ONE** reason why this software is used.

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2 marks



**Question 5**

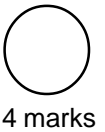
**Marks**

Byte make use of the Internet to advertise the band.  
Use of the Internet to advertise has increased in recent years.

**5a** Give **TWO** reasons for this **recent** increase in advertising on the Internet.

1 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



4 marks

**5b** State **TWO** benefits to Byte of using the Internet over **ALL** other forms of advertising.

1 \_\_\_\_\_  
\_\_\_\_\_

2 \_\_\_\_\_  
\_\_\_\_\_



2 marks

There is a password on certain pages of the Byte Web Site.

**5c** Explain why this is the case.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



2 marks

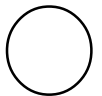
The Byte Web Site contains over fifty HTML pages of information with buttons or hot spots and hypermedia features.

5d Explain the purpose of a **button** or **hot spot** on a page.

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2 marks

5e State **TWO** hypermedia features that might be found on the Byte Web Site.

1 

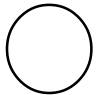
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2 

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2 marks



**Question 6**

**Marks**

There are three separate places at which tickets may be booked for each Byte concert. The band want as many of their fans as possible to see them during their tour. They do not want to disappoint anyone by selling too many tickets for any concert.

**6a** Put the following operations into the correct sequence for issuing a ticket using the credit card telephone hotline with a paper-based system.

- A Customer informs booking clerk of credit card details
- B Booking clerk contacts credit card company
- C Customer telephones hotline
- D Booking clerk asks venue how many tickets are remaining
- E Venue informs booking clerk of the number of tickets remaining
- F Booking clerk informs customer that there are tickets remaining
- G Booking clerk contacts venue
- H Booking clerk informs venue of customer details and tickets required
- I Venue sends required number of tickets to customer
- J Booking clerk requests transfer of money from credit card company
- K Customer provides details of concert and number of tickets required

**First**

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**Last**



6 marks

**6b** Give **THREE** objectives that a booking system should aim to achieve when selling tickets.

1 \_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

3 \_\_\_\_\_

\_\_\_\_\_



3 marks

**6c** Describe **TWO** problems that may occur with the booking system having three outlets selling tickets simultaneously.

1 \_\_\_\_\_

\_\_\_\_\_

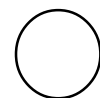
\_\_\_\_\_

**TURNOVER**

2 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



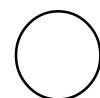
4 marks

There are two possible systems being considered for the ticket booking:  
 A paper-based system using no I.T. other than the telephone system.  
 An on-line computerised system making full use of I.T.

6d State **ONE** advantage of using the **on-line** system compared to the **paper-based** system.

\_\_\_\_\_

\_\_\_\_\_

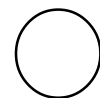


2 marks

6e State **ONE** disadvantage of using the **on-line** system compared to the **paper-based** system.

\_\_\_\_\_

\_\_\_\_\_

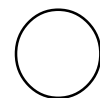


2 marks

The booking clerk in the Byte office is disabled and is unable to type in data on a keyboard.

6f State **ONE** type of software that would allow her to enter data into the computer.

\_\_\_\_\_



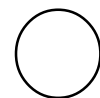
1 mark

6g Give **THREE** additional items of hardware that would be required to use this software.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_



3 marks



TOTAL max 21

Here is part of an order form for Byte merchandise.

**Order Form**

# Bytewear

unavailable in the shops

State quantity required of each item in the appropriate box

T-Shirts  S(£5)  M(£6)  L(£7)  XL (£8)

S-Shirts  S(£7)  M(£8)  L(£9)  XL (£10)

Caps  S(£3)  M(£4)  L(£5)  XL (£6)

Postage & Packing (£1 per item)

**7a** Explain how the above form would need to be adjusted in order to capture the required data from each order by means of an **Optical Mark Reader (OMR)** system.

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○  
2 marks

**7b** State **TWO** benefits of the OMR method of input.

1 \_\_\_\_\_

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2 \_\_\_\_\_

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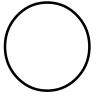
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○  
4 marks

7c State **TWO** drawbacks of this method of input.

1 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



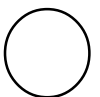
4 marks

7d Give **ONE** other situation in which Optical Mark Readers might be used in **EACH** of the following areas:

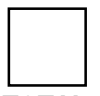
Education \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Hospitals \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Sport &  
Recreation \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



3 marks



**TOTAL**  
**max 13**

**Question 8**

Marks

Polly orders some merchandise from Bytewear.  
Below is part of an order form she will have to fill in:

State quantity required of each item in the appropriate box					COST (£)
T-Shirts	<input type="checkbox"/> S (£5)	<input type="checkbox"/> M (£6)	<input type="checkbox"/> L (£7)	<input type="checkbox"/> XL (£8)	_____
S-Shirts	<input type="checkbox"/> S (£7)	<input type="checkbox"/> M (£8)	<input type="checkbox"/> L (£9)	<input type="checkbox"/> XL (£10)	_____
Caps	<input type="checkbox"/> S (£3)	<input type="checkbox"/> M (£4)	<input type="checkbox"/> L (£5)	<input type="checkbox"/> XL (£6)	_____
Postage & Packing (£1 per item)					_____
Total					<input type="text"/>

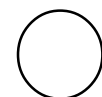
Bytewear use a spreadsheet to work out the cost of each order they receive.

- 8a** In the grid on the page opposite, construct a spreadsheet which will:-
- i allow entry of all the information from the order form
  - ii clearly display the costs of goods ordered
  - iii calculate and display the cost of postage and packing
  - iv calculate and display the total cost to the customer

Where a cell is to contain a formula, display that formula in the cell.

When constructing the spreadsheet, the replication function might be used to save time entering formulae.

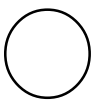
- 8b** Give **ONE** example of a set of cells where this facility might be used.



2 marks

	A	B	C	D	E	F	G	H	I	J	K
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											

TURNOVER



8 marks



TOTAL  
max 10

**Question 9**

Marks

Byte make use of computer music technology in producing and recording their music.

They use **Musical Instrument Digital Interface (MIDI)** technology to link their instruments together.

**9a** Describe **TWO** facilities that MIDI provides.

1 \_\_\_\_\_

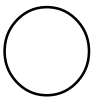
\_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



4 marks

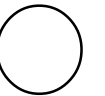
When recording their music, Byte use a **multi-track** recorder.

**9b** Place into the correct order the sequence of operations the band would go through to record a song.

- A Record a "guide track".
- B Record the "mix" onto a master tape.
- C Record the vocals while listening to the backing track.
- D Adjust the volumes of the separate tracks to create a quality mix.
- E Add effects to each of the individual tracks to make them sound professional.
- F Record a backing track while listening to the guide track to keep in time.
- G Wipe out the "guide track".

**First**

**Last**



4 marks

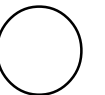
MIDI allows information about musical notes to be stored in digital form. Each individual note is described in terms of four parameters (properties).

**9c** State **THREE** of these parameters that must be stored.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_



3 marks



**TOTAL**  
max 11

TURNOVER

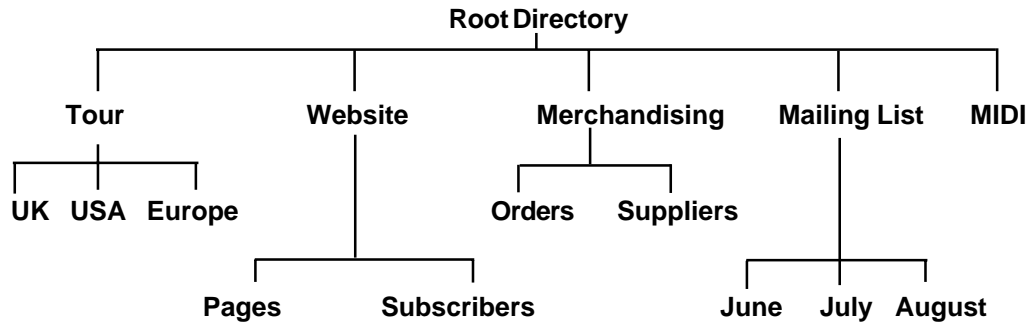
**Question 10**

**Marks**

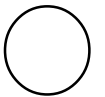
The central Byte computer system contains information about many different areas of their business.

The **computer's operating system** has been used to create a separate folder (directory) of files for each area of the business.

Some directories contain other sub-directories (as indicated in the diagram)



**10a** State **ONE** reason why the files are arranged in such a way.

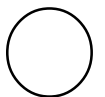


2 marks

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**10b** State **THREE** other file handling facilities the operating system is likely to provide.



3 marks

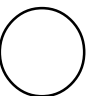
1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

For mail merge purposes, the mailing list database file is always called **mailist.csv**

**10c** Explain what would happen if this file were not saved in a different folder each month.



2 marks

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**TURNOVER**

10d Describe **TWO** ways in which a Byte fan could use the internet to find out more about the band.

1 \_\_\_\_\_

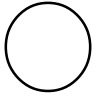
\_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



4 marks

10e Describe **TWO** ways in which IT developments have improved the chances of Byte selling more tickets to their concerts than in the past.

1 \_\_\_\_\_

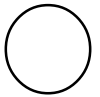
\_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



4 marks



**Question 11**

**Marks**

Fred buys one of the Byte CD-ROMS.

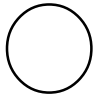
The CD-ROM comes complete with several pieces of documentation for the user. One of these is minimum system requirements:

- IBM PC compatible
- Pentium processor
- 32 Mb RAM
- 12 Mb Hard disk space for complete installation
- 8 speed CD-ROM drive
- SVGA Display

**11a** Explain why this information is normally printed on the outside of the box.

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2 marks

Other documentation enclosed with the CD includes:

- the name of the program manufacturer
- the version number
- a copyright statement

**11b** State **ONE** circumstance in which **EACH** of these items might be used.

manufacturer name \_\_\_\_\_

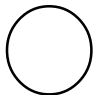
---

version number \_\_\_\_\_

---

copyright statement \_\_\_\_\_

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3 marks

**TURNOVER**

11 continued

Polly's computer system does not have a CD-ROM drive.

11c Give **TWO** advantages of CD-ROM compared to a floppy disk.

1 \_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_



2 marks

11d Give **TWO** advantages of a floppy disk compared to a CD-ROM.

1 \_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_



2 marks

To use all of the facilities on the CD-ROM, Fred needs to use different output devices.

11e State a **different** device Fred would need in order to be able to enjoy **each** of the following items on the CD-ROM.

Sound Tracks \_\_\_\_\_

Video Gallery \_\_\_\_\_

Sheet Music \_\_\_\_\_



3 marks



**BLANK PAGE**

**TURN OVER FOR QUESTION 12**

**Question 12**

**Marks**

Polly has joined the Byte Fan Club and has decided to upgrade her computer so she can access the Byte Internet Web Site.

**12a** State the item of hardware she will need to purchase to connect her computer to the telephone line.



1 mark

Polly subscribes to Hype Technology, an internet service provider.

**12b** State **THREE** services Hype Technology will provide for her.

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_



3 marks

The Byte Web Site is maintained by the Byte office.

**12c** Describe **THREE** tasks people within the Byte office will need to carry out using the internet to maintain the Web Site service.

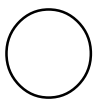

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_



6 marks

The Byte office want to evaluate what the fans think of their Internet Web Site.  
The office staff have decided to produce an on-line questionnaire for fans, the responses to which will be fed directly into a database.

**12d** Design a form asking **THREE** questions to provide information to the Byte office as to what the fans think of the Byte Web Site.



8 marks



**TOTAL**  
max 18

```

The Byte database stores details of the date of each concert.

The date field must be given a validation check. This consists of a simple set of
instructions and two subroutines dealing with date and month separately.
The date is stored in the form DDMMYY

MEMO Validation routine for date field
SET ERROR TO FALSE
INPUT DATE
GO TO SUBROUTINE CHECKMONTH (DATE, ERROR)
GO TO SUBROUTINE CHECKDAY (DATE, ERROR)
IF ERROR IS TRUE THEN PRINT "INVALID DATE"
END

SUBROUTINE CHECKDAY (DATE, ERROR)
MEMO Validation routine for the day
DAY = DAY OF (DATE)
IF DAY IS BIGGER THAN 31 THEN SET ERROR TO TRUE
RETURN TO MAIN PROGRAM

SUBROUTINE CHECKMONTH (DATE, ERROR)
MEMO Validation routine for the month
MONTH = MONTH OF (DATE)
IF MONTH IS BIGGER THAN 12 THEN SET ERROR TO TRUE
RETURN TO MAIN PROGRAM
    
```

13a Explain exactly what you understand by the word **validation**.

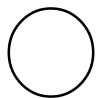
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3 marks

13b Explain exactly what you understand by the word **subroutine**.

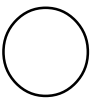
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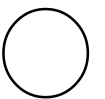
3 marks

13c Describe the purpose of the lines which begin with the word **MEMO**.

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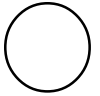
2 marks

TURN OVER

13d Give **ONE** invalid date the validation check would not reject.

\_\_\_\_\_

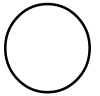
Marks



1 mark

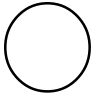
13e State the **TWO** values the variable **ERROR** may take.

1 \_\_\_\_\_ 2 \_\_\_\_\_



2 marks

13f State the name given to this type of variable. \_\_\_\_\_



1 mark

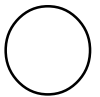
In testing the validation routine, different types of test data for the date are used.

13g Give **ONE** example date for each of the following types of test data:

1 expected data \_\_\_\_\_

2 extreme data \_\_\_\_\_

3 erroneous data \_\_\_\_\_

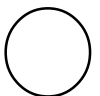


3 marks

In the date field, the year is represented by two digits.

13h Describe **ONE** problem which may arise with this format for the year in the date.

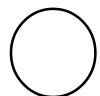
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



2 marks

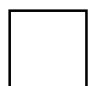
13i State how this problem might be resolved.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



1 mark

**END**



**TOTAL**  
max 18