

GENERAL CERTIFICATE OF SECONDARY EDUCATION
APPLIED INFORMATION AND
COMMUNICATION TECHNOLOGY (Double Award)
ICT Knowledge and Understanding

4872

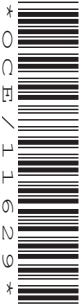
Candidates answer on the Question Paper

OCR Supplied Materials:
None

Other Materials Required:
None

Tuesday 19 January 2010
Morning

Duration: 1 hour 30 minutes



| | | | |
|--------------------|--|-------------------|--|
| Candidate Forename | | Candidate Surname | |
|--------------------|--|-------------------|--|

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|---------------|--|--|--|--|--|------------------|--|--|--|--|
| Centre Number | | | | | | Candidate Number | | | | |
|---------------|--|--|--|--|--|------------------|--|--|--|--|

INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **100**.
- No marks will be awarded for using brand names of software packages or hardware.
- This document consists of **20** pages. Any blank pages are indicated.

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Elm Wood Sports Centre is a public sports centre with two swimming pools, a gym, sports hall, indoor and outdoor courts, and pitches for a variety of sports.

- 1 The reception area at Elm Wood Sports Centre has a computer system.

The table below shows some of the items included in this computer system.

Place **one** tick in **each** row of the table to show whether each item is an input device, an output device, a storage device or software.

| Item | Input device | Output device | Storage device | Software |
|----------------------|--------------|---------------|----------------|----------|
| Hard disk drive | | | | |
| Keyboard | | | | |
| Magnetic card reader | | | | |
| Monitor | | | | |
| Mouse | | | | |
| Operating system | | | | |
| RAM | | | | |
| Speakers | | | | |
| Spreadsheet | | | | |

[9]

2 Regular users of Elm Wood Sports Centre pay a monthly fee to become members. Their details are stored on the computer system using database software.

Fig. 1 below shows part of the data stored in the database.

| Member Number | Last Name | First Name | Date of Birth | Address 1 | Post Code |
|---------------|-----------|------------|---------------|------------------|-----------|
| 10001 | Allen | Clive | 01/05/1960 | 1 The Green | AN5 2KC |
| 10002 | Ali | Majid | 10/09/1985 | 21 Stubbs Lane | AN5 9SI |
| 10004 | Brown | Hugh | 01/01/1975 | 1 The Lanes | AN5 7TK |
| 10005 | Hughes | May | 24/05/1949 | 13 Leigh Way | AN8 5GM |
| 10006 | Xia | Yuan | 31/08/1984 | 21 Valley Street | AN1 5RV |

Fig. 1

- (a) (i) How many records are shown in Fig. 1?.....[1]
 (ii) Give the name of **one** field shown in Fig. 1.[1]

(b) Explain why **these** details need to be kept by Elm Wood Sports Centre.

.....

 [2]

(c) Give **three** advantages to Elm Wood Sports Centre of storing this data on computer rather than on paper.

Advantage 1

 Advantage 2

 Advantage 3
 [3]

- (d) When a member comes to use the Sports Centre they show their membership card to the receptionist who enters their Member Number into the computer system.

Explain why the receptionist enters the Member Number rather than the member's name.

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..... [2]

- (e) Pawel is responsible for maintaining the Elm Wood Sports Centre database. He regularly makes backups and archives.

Explain what is meant by a backup and an archive, and why both are needed.

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..... [5]

3 Elm Wood Sports Centre needs to comply with Data Protection legislation.

(a) Place **one** tick in each table below to show which of the two statements about Data Protection legislation is true.

(i)

| Statement | True (✓) |
|---|-------------|
| Data Protection legislation applies only to personal data. | |
| Data Protection legislation applies to all data held. | |

[1]

(ii)

| Statement | True (✓) |
|---|-------------|
| Data Protection legislation applies only to data stored on computer. | |
| Data Protection legislation applies to both paper and data stored on computer. | |

[1]

(iii)

| Statement | True (✓) |
|--|-------------|
| Elm Wood Sports Centre cannot store data about a member unless that member has given their permission. | |
| Elm Wood Sports Centre can store data about members without specifically asking their permission, in order to run the members' scheme. | |

[1]

(b) Data Protection legislation states that data should be accurate and, where necessary, kept up to date.

(i) Why is this necessary?

.....

.....

..... [1]

(ii) Give **two** ways Elm Wood Sports Centre can ensure they comply with this requirement.

Way 1

.....

Way 2

..... [2]

(c) Data Protection legislation states that appropriate measures should be taken to avoid accidental loss or damage to data.

(i) Why is this necessary?

.....

..... [1]

(ii) Give **two** ways Elm Wood Sports Centre can ensure they comply with this requirement.

Way 1

.....

Way 2

..... [2]

4 The tables below show data about the following:

Table 1. A comparison of the calories contained in five popular take-away meals.

Table 2. A breakdown of the hours spent in a day on different activities by an average child in the UK.

Table 3. The rise in the obesity in boys and girls in the UK between 1995 and 2000.

| Meal | Calories |
|------------------------------------|-----------------|
| Sweet and sour chicken and rice | 1436 |
| Chicken tikka masala, rice and nan | 1338 |
| Cheese and tomato pizza | 836 |
| Burger and fries | 1050 |
| Baguette and cookie | 670 |

| Activity | Number of hours |
|---------------------|------------------------|
| Sleeping and eating | 11 |
| Study | 5 |
| Household tasks | 1 |
| Social/hobbies | 2.5 |
| Sports | 0.5 |
| TV | 2.5 |
| Travel | 1.5 |

| | Boys | Girls |
|-------------|-------------|--------------|
| 1995 | 3.7 | 5.7 |
| 1996 | 4.1 | 5.9 |
| 1997 | 4.0 | 5.8 |
| 1998 | 4.2 | 7.0 |
| 1999 | 5.9 | 7.1 |
| 2000 | 4.8 | 6.8 |

Serena works as a fitness instructor for Elm Wood Sports Centre. She is preparing an information leaflet for customers. She wants to display in her leaflet data from tables 1, 2 and 3 (opposite).

- (a) Compare the advantages of using tables, bar charts, pie charts and line graphs to display this data.

..... [5]

- (b) Complete the outline of the main tasks Serena needs to carry out in order to create the leaflet in a form that is ready for printing.

Serena would first use software to create the charts she needs.

She would then

..... [6]

5 Elm Wood Sports Centre has a website.

(a) Explain **one** benefit and **two** possible problems of including many photographs and videos of the Sports Centre's activities on the website.

Benefit

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Problem 1

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Problem 2

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..... [6]

(b) Elm Wood Sports Centre pays a specialist company to create and maintain its website.

(i) Explain the benefits of using a specialist company in this way.

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..... [3]

(ii) Identify **one** additional cost of having a website, other than paying to create and maintain it.

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..... [1]

6 The fitness machines at Elm Wood Sports Centre use ICT to measure and monitor customers' performance, for example, speed and heart rate.

(a) Explain **two** benefits of using ICT to measure and monitor performance in this way.

Benefit 1.....
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.....
.....

Benefit 2.....
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.....
..... [4]

(b) Identify the type of device used for measurement in a monitoring system.
..... [1]

(c) The temperature in the swimming pools is maintained using computer control.
What is the difference between computer monitoring and computer control?
.....
.....
..... [2]

7 Aysha is the Customer Service Manager at Elm Wood Sports Centre.

(a) Aysha begins each working day by reading and answering emails.

Explain the benefits to Aysha of using email rather than more traditional methods of communication.

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..... [4]

(b) Aysha receives many emails from people she does not know. Whilst most of these are from members of the public who are requesting information, some are spam.

(i) Explain what is meant by the term spam in this context.

.....
..... [1]

(ii) Give **two** problems caused by spam.

Problem 1
.....
Problem 2
..... [2]

(iii) Give **one** benefit and **one** problem of using spam filter software to deal with spam.

Benefit
.....
Problem
..... [2]

(c) Aysha also writes a large number of letters and reports. She stores all these documents on her computer system and often needs to refer to them.

Explain steps Aysha can take to make sure she can easily find the files she wants.

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- 8 Richard is organising a children's activity week for the school half-term holiday. Fig. 2 shows a flyer he has started to create to advertise the event.

Elm Wood Sports Centre, Elm Wood Way,
Anytown, AN5 2CK

Half-term Activity Week

Fantastic fun
10am-3pm **Monday 15th February – Friday 19th February**

Including:

- * Fun pool with giant slide
- * Rounders
- * Trampoline
- * Dance
- * Drama
- * Craft activities

£1 per day, £4 for all five days

*Enquiries to Richard on 01632 960200
or rbarrett@elmwoodsports.co.uk*

Fig. 2

- (a) Circle **one** example on the flyer that shows each of the following features.

Label each as shown in the table below.

The first one (**A**) has been done for you as an example.

| Feature | Label |
|-----------------|--------------|
| Large font size | A |
| Bold text | B |
| A bulleted list | C |
| Centred text | D |
| Italic text | E |

[4]

(b) (i) Suggest **three** improvements that could be made to the **layout** of Richard's flyer.

Improvement 1

.....

Improvement 2

.....

Improvement 3

..... [3]

(ii) Explain why your suggestions will improve the layout of Richard's flyer.

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..... [3]

- 9 Elm Wood Sports Centre uses a spreadsheet to calculate booking costs. Fig. 3 shows the part of the sheet that calculates the cost of booking badminton courts. Details of a booking have been entered.

| | A | B | C | D |
|---|--------------------------------|------------|-----------------|---------------|
| 1 | Badminton Court Booking | | | |
| 2 | | Price each | Number required | Cost |
| 3 | Courts (per hour) | £5.00 | 2 | £20.00 |
| 4 | Racquet hire | £1.50 | 4 | £6.00 |
| 5 | Number of hours required | | 2 | |
| 6 | | | | |
| 7 | Total Cost | | | £26.00 |

Fig. 3

- (a) When a group wishes to book a court a member of staff enters details into cells C3 and C4.
- (i) Write down the cell reference for the other cell that the member of staff needs to change when a booking is made.
 [1]
- (ii) When these figures are entered the number in cell D3 changes.
 Write down the cell reference for each of the other cells that will change.
 [2]
- (b) Write down the formula that would be needed in cell D3.
 [2]

- (c) Elm Wood Sports Centre introduces a special Saver Card for people over the age of 60. This gives card holders discounts on some fees. The discount for badminton is that card holders only have to pay 50p for racquet hire.

Describe the changes that need to be made to the spreadsheet in Fig. 3 to allow this discount to be calculated. This must allow bookings from mixed groups where some are card holders and some are not.

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..... [4]

10 Many members of Elm Wood Sports Centre bank online and use this service to set up direct payments for their monthly membership fees.

(a) Describe the benefits of banking online

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..... [3]

(b) Explain how bank customers can reduce the possibility of other people illegally accessing their bank accounts on line.

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19
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