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## APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

**9713/02**

## Paper 2 Practical Test

May/June 2017

**2 hours 30 minutes**

Additional Materials:      Candidate Source Files

**J17evidence.rtf**  
**j17bus.csv**  
**j17destination.csv**  
**j17seats.csv**

## READ THESE INSTRUCTIONS FIRST

Make sure that your **Centre number**, **candidate number** and **name** are written at the top of this page and are clearly visible on every printout, before it is sent to the printer. Printouts with handwritten candidate information will **not** be marked.

DO **NOT** WRITE IN ANY BARCODES.

Carry out **every** instruction in each task.

At the end of the exam put this **Question Paper** and **all** your printouts into the Assessment Record Folder.

The number of marks is given in brackets [ ] at the end of each question or part question.

Any businesses described in this paper are entirely fictitious.

This document consists of **5** printed pages and **3** blank pages.

You work for the Cansaulim Beach Hotel. You are going to analyse the details of the hotel's mini-bus service.

Each bus route is used by a single bus. The buses vary in size and each can transport a different number of people. Each bus route has a different destination. If a bus is 4 or more minutes late the hotel considers this to be a long delay.

You must use the most efficient method to solve each task. All spreadsheets must be of a professional standard and fit the context of this business.

- 1 You will provide evidence of your work, including screen shots at various stages. Make sure that these screen shots can be easily read. Open the document **J17evidence.rtf**

Place your name, Centre number and candidate number in the header.

Save this Evidence Document with the filename:  
Evidence\_CentreNumber\_CandidateNumber  
e.g. Evidence\_ZZ999\_9999

[1]

- 2 Open the following files and examine the data:

- j17bus.csv
- j17destination.csv
- j17seats.csv

Open the file **j17bus.csv** and save this as a spreadsheet. Insert new rows and labels at the top of this spreadsheet and format it so that it looks like this:

|   | A                                  | B   | C             | D    | E                | F         | G                     | H           |
|---|------------------------------------|-----|---------------|------|------------------|-----------|-----------------------|-------------|
| 1 | Cansaulim Beach Hotel              |     |               |      |                  |           |                       |             |
| 2 | Mini-bus services - delay analysis |     |               |      |                  |           |                       |             |
| 3 | Average delay                      |     | Longest delay |      | Number of delays |           | Number of long delays |             |
| 4 |                                    |     |               |      |                  |           |                       |             |
| 6 | Bus Code                           | Due | Arrived       | Late | Minutes          | Bus Route | Capacity              | Destination |

Place screen shot evidence showing only cells A1 to H6 in your Evidence Document.

[10]

- 3 In the *Late* column, enter a formula to calculate the number of minutes the first bus was late. This must be displayed in a hh:mm time format. If the bus was early this should return 00:00 [4]
- 4 Enter a function in the *Minutes* column to calculate and display as an integer, the number of minutes that the first bus was late. [2]
- 5 Enter a formula in the *Bus Route* column to extract the route number from the *Bus Code*. The route number is the 9th character of the *Bus Code*. [4]

- 6 Enter a function in the *Capacity* column to display the number of seats available on the first bus. You must use the original external data file within this function. [6]
- 7 Enter a function in the *Destination* column to display the destination for this journey. The destination code is the fifth character of the *Bus Code*. You must use the original external data file for this function. [6]
- 8 Replicate the formulae entered in steps 3 to 7 for every *Bus Code*. [1]
- 9 In the appropriate cells, enter formulae to calculate:
- the average delay, which must **not** include buses that were on time or early
  - the longest delay
  - the number of journeys that had a delay
  - the number of journeys that were 4 or more minutes late.
- Each calculation should return an integer value rounded to the nearest whole number. [10]
- 10 Centre align all cells in row 4 and apply appropriate formatting to all other cells. [2]
- 11 Create a header which says **Formulae printed by:** followed by your name, Centre number and candidate number. [1]
- 12 Print the contents of cells A1 to I20 in landscape orientation, showing the formulae used.
- Ensure that all row and column headings, formulae and labels are fully visible. [4]
- 13 Sort the data into ascending order of *Bus Route* and then into descending order of *Minutes*. [1]
- 14 Select only those buses with a *Due* time of between 12:00 and 12:30 inclusive. [2]
- 15 Change the wording of the header to **Lunchtime journeys – printed by:** followed by your name, Centre number and candidate number. [1]
- 16 Save and print all details of this extract, adjusting the page layout if necessary so that the whole table fits on a single page with all cells fully visible. [2]

- 17 In a new sheet, calculate for each route, from all the data, the number of buses that had long delays. Do **not** edit the original data source and do **not** use additional cells. Display your results like this:

| Number of buses with a long delay |         |         |         |         |         |         |         |         |
|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Route 1                           | Route 2 | Route 3 | Route 4 | Route 5 | Route 6 | Route 7 | Route 8 | Route 9 |
| 9                                 | 9       | 9       | 9       | 9       | 9       | 9       | 9       | 9       |

Note that the numbers shown are examples, they are **not** correct.

[14]

- 18 Create a header which says **Long delays by route – printed by:** followed by your name, Centre number and candidate number. [1]

- 19 Save and print all details of this extract so that it fits on a single page. Make sure that the contents of all cells are fully visible. [1]

- 20 Print this spreadsheet in landscape orientation, showing the formulae used.

Ensure that all formulae and labels are fully visible. Show row and column headings.

[2]

*Your manager wants a graph or chart comparing the number of journeys on each route and the average number of minutes late for those journeys.*

- 21 Select only the routes where the average delay is greater than 4 minutes and for these destinations create a graph or chart comparing the average delay (in hours and minutes) and the number of journeys made to that destination.

Apply appropriate labelling and formatting to your graph or chart.

Copy your completed graph or chart and paste it into your Evidence Document.

[19]

*Buses that are late cost the hotel money. Your manager wants an analysis of the cost of the late mini-buses to each destination.*

*The cost for each minute that a bus is late is currently 0.0213 rupees for each seat on the bus (as larger buses use more fuel). Buses that are early save money. The cost of fuel changes every day so a single cell to enter the cost per minute will be required.*

*Each cost will be shown as a negative value if it costs the hotel money or a positive value if it saves them money.*

*All currency values are to be in rupees to 2 decimal places.*

- 22 Open a new spreadsheet and create a model that the manager can use to analyse the costs of the late mini-buses to each destination. [16]

- 23** Print the top 25 rows of this spreadsheet showing the formulae used. Ensure that your name, Centre number, candidate number, all formulae and labels are fully visible. Show row and column headings. [1]
- 24** Save and print this spreadsheet showing the values, adjusting the page layout if necessary so that it fits on a single page wide. Make sure that the contents of all cells are fully visible. Do **not** show row and column headings. [2]
- 25** Restrict the data entry for the cell holding the cost per seat per minute (0.0213) to between 0.005 and 0.05.
- Offer the user appropriate advice.
- Show screen shot evidence of your method in your Evidence Document. [7]
- 26** Save and print your Evidence Document.

**Write today's date in the box below**

Date

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**APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY**

**9713/04**

Paper 4 Practical Test

**May/June 2017**

**2 hours 30 minutes**

Additional Materials:      Candidate Source Files

**READ THESE INSTRUCTIONS FIRST**

Make sure that your **Centre number**, **candidate number** and **name** are written at the top of this page and are clearly visible on every printout, before it is sent to the printer. Printouts with handwritten candidate information will **not** be marked.

DO **NOT** WRITE IN ANY BARCODES.

Carry out **every** instruction in each task.

At the end of the exam put this **Question Paper** and **all** your printouts into the Assessment Record Folder.

The number of marks is given in brackets [ ] at the end of each question or part question.

Any businesses described in this paper are entirely fictitious.

This document consists of **4** printed pages.

*You are working for The Jolly Hockey club. They are a hockey club that has members who play hockey games against other teams in a hockey league. Jethro is the manager of The Jolly Hockey club.*

*All documents produced must be of a professional standard, suit the business context and contain your candidate details. The most efficient methods must be used.*

*You are required to provide evidence of your work, including screenshots at various stages. Each screenshot should clearly show the relevant evidence. You will record your evidence in a document named:*

CentreNumber\_CandidateNumber\_Evidence

e.g ZZ999\_999\_Evidence

Place your name, Centre number and candidate number in the header of your Evidence Document.

You have been provided with the following files:

**Player\_details.csv** – The details of the club players

**Fees.csv** – The fees for a player to be a member of the club

**League\_table.csv** – The league table of the teams in the hockey league

**Logo.jpg** – The logo for The Jolly Hockey club

**Fees\_due\_letter.rtf** – A template letter for sending to players

**Placecards.rtf** – A template for place cards

Examine the contents of each file.

- 1 In the file **Player\_details.csv** a formula must be entered to create the *Player\_ID*. The formula must select the first two letters of the player's forename and the first two letters of the player's surname, to create the *Player\_ID*.

The *Age* for each player must be automatically calculated.

The *Player\_status* for each player must be automatically displayed. Their status should be:

- Junior – if the player is less than 18 years of age
- Adult – if the player is between 18 and 54 years of age (inclusive)
- Senior – if the player is over 54 years of age.

Enter a formula that will automatically display the *Player\_fee* from the **Fees.csv** file. The fee must display as Euros with no decimal places.

Save the file as a spreadsheet with the name **PlayerStatusAndFees**

Include screenshot evidence of your formulae in your Evidence Document.

Print the spreadsheet showing the values.

**2 Create a database using the file **PlayerStatusAndFees****

Create a report for Jethro to show how many junior, adult and senior players there are in the club. The report must display the forename and surname of each player and be grouped by player status. Each group must appear on a separate page. A total must be displayed for the number of players in each player status.

The logo must be displayed at the top of the report with the title **Number of Players in Each Status Group**.

Print the report.

Include screenshot evidence of your table structure, data types and key field in your Evidence Document.

[14]

**3 Jethro wants to send a letter to players whose player fee is due.**

Use the database and the template **Fees\_due\_letter.rtf** file and follow the instructions to mail merge a letter to players whose fee is due.

Gurdeep Dasgupta does not need a letter.

Print the merge document showing all the field codes.

Perform the mail merge to create and print the individual letters.

Include evidence of your selection method in your Evidence Document.

[29]

**4 The Jolly Hockey club is part of a hockey league. The league table for this can be seen in the **League\_table.csv** file.**

Jethro wants the points calculating for each team in the league. Enter a formula into the *Points* column to automatically calculate a team's points. A team gets:

- 3 points for each game won
- 1 point for each game drawn
- 0 points for each game lost.

Print the spreadsheet showing the formulae.

The number of points each team has will change during a season, depending on their results.

Jethro wants to be able to automatically re-order the teams in the league into descending points order. When two or more teams have the same points, these must also be in descending order of games won.

Create a macro or procedure and attach it to a button to carry out this process. Label the button **Update League Table**.

Annotate each step of your macro or procedure with programmer's comments. Print a copy of your macro or procedure.

Click the *Update League Table* button and print the spreadsheet showing the values.

Two more games have been played with the following results:

| Team 1            | Team 2      | Team 1 goals | Team 2 goals |
|-------------------|-------------|--------------|--------------|
| James Town Rovers | The Violets | 3            | 3            |
| Putt United       | Putt Rovers | 0            | 4            |

Update the league table with these results.

Click the *Update League Table* button and print the spreadsheet showing the values.

[13]

- 5 The Jolly Hockey club holds an end-of-season party for all the teams in the league that have more than 40 points. Jethro wants labels to use as place cards to put on each table at the party, to show where a team should sit.

Use the **Placecards.rtf** file and follow the instructions to create the labels to be used as place cards.

The labels need to be in order of team position. The team in position 1 should have the additional text '**WINNERS**' displayed on their label. The team in position 2 should have the additional text '**RUNNERS UP**' displayed on their label.

Each team's name and position must be displayed at 26pt. Each team's points must be displayed at 16pt.

Insert your candidate details in the footer of the page.

Print the merge document showing all the field codes.

Perform the mail merge to create and print the individual labels.

[16]

Save and print your Evidence Document.

**Write today's date in the box below.**

Date

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## APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/11

## Paper 1

May/June 2017

**1 hour 15 minutes**

Candidates answer on the Question Paper.

No Additional Materials are required.

## READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

Do not use staples, paper clips, glue or correction fluid.

You may use an HB pencil for any diagrams, graphs or rough working.

DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

The number of marks is given in brackets [ ] at the end of each question or part question.

The businesses described in this paper are entirely fictitious.

This document consists of **16** printed pages.

**Scenario 1****Questions 1, 2 and 3**

International Computers Lesotho is a rapidly expanding computer manufacturer based in Africa. They are currently considering the various ways ICT could be used to advertise their latest computer.

Jacob is the manager of the advertising department. Jacob has agreed to let his employees work compressed hours.

- 1 Tick the **four** most accurate statements about the use of ICT in advertising.

|   |   |
|---|---|
|   | ✓ |
| Customers have to have a computer and be connected to the internet to view posters on billboards. |   |
| A website can be expensive to maintain compared to other methods.                                 |   |
| Posters/presentations can only be seen in a limited number of places.                             |   |
| Posters cannot be defaced as easily as presentations in shopping malls.                           |   |
| Hard copy flyers are interactive.   |   |
| Printed posters have multimedia features.   |   |
| Websites and presentations are easier to update as you do not have to reprint many copies.        |   |
| A much wider area or potential customer base is covered cheaply by using flyers.                  |   |
| Emailed advertisements may be mistaken for spam.  |   |
| It is difficult to send the same message to many people at the same time if using email.          |   |

[4]

- 2 Tick the **four** most accurate statements about a company using someone else's website to advertise their products.

|   |   |
|---|---|
|   | ✓ |
| It is cheaper than employing a programmer to create and maintain it.  |   |
| Pop-ups may create unhappy customers who may avoid that company in future.  |   |
| Customers will use pop-up blocking software which does not allow pop-up ads to appear.  |   |
| A pop-up does not appear to users until they close the page they are working on.  |   |
| The company's own website has a longer delay in updating or improving the advertising material.                                 |   |
| The customer regards pop-up ads as less of an inconvenience than pop-ups.   |   |
| There is no way of linking pop-ups and pop-up ads to the company's own website.   |   |
| The company has more control over the host's website than it would over its own.  |   |
| There may be so many other companies advertising on the host's website that the company's advertising has less space available. |   |
| Fewer people may see it if it's on someone else's website.  |   |

[4]

**3 (a)** Describe what is meant by working compressed hours.

.....[2]

**(b)** Discuss the benefits and drawbacks to the company and its workers of working compressed hours.

[8]



**Scenario 2****Questions 4, 5 and 6**

Maharashtra Fashions is a very large mail order catalogue company which sells a variety of clothes. They have recently changed to using the internet as their only method of selling goods.

In order to help their customers with any technical problems, Maharashtra Fashions is going to set up a call centre.

Davindra, a member of the ICT department, has been asked to create a simple spreadsheet. This will convert the customer's waist size from cm to the garment size Small, Medium or Large. A waist size that is less than 75 cm will cause "Small" to be displayed. A waist size between 75 cm and 95 cm will cause "Medium" to be displayed. A waist size greater than 95 cm will cause "Large" to be displayed.

- 4 (a) Apart from security issues, discuss the advantages and disadvantages to the **customer** of using online shopping.

[6]

- (b)** Apart from security issues, discuss the advantages and disadvantages to the **company** of online shopping.

.....[6]

- 5 (a) Apart from Computer Telephony Integration (CTI) software, describe **three** different types of software, including their use, which each telephony operator at the call centre may need to help them with their work.

Type 1: .....

.....

.....

Type 2: .....

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Type 3: .....

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.....[3]

- (b) Describe the differences between the **two** types of call control used with CTI software.

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.....[6]

6 (a) Below is part of the spreadsheet Davindra has created:

|   | A                  | B             | C | D               |  |
|---|--------------------|---------------|---|-----------------|--|
| 1 |                    |               |   |                 |  |
| 2 |                    |               |   |                 |  |
| 3 |                    | Waist<br>size |   | Garment<br>size |  |
| 4 |                    |               |   |                 |  |
| 5 |                    |               |   |                 |  |
| 6 | Raymond Barrington | 74            |   | Small           |  |
| 7 | Paula Wilkinson    | 77            |   | Medium          |  |
| 8 | Gustav Larson      | 98            |   | Large           |  |
| 9 |                    |               |   |                 |  |

Complete the following formula which should go in cell D6 such that it can be replicated easily.

=IF(B6<75, .....  
 .....  
 .....[6]

Here is a space for you to use for any working out you need.

- (b) Davindra wishes to develop her spreadsheet so that waist sizes with decimal values can be entered. These will then be rounded to become an integer.

Explain how she will use the spreadsheet to allow this to happen. Include in your explanation the change that will need to be made to the formula in D6.

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.....[4]

**Scenario 3****Questions 7, 8, 9, 10 and 11**

Queen Mary's Hospital has recently decided to upgrade its patient records system. One of the uses of the new system will be to provide the patient's family doctor with information about the treatment received by the patient.

Jasvir, a systems analyst, has been asked to collect information about the current system and to develop a new improved system.

Jasvir has a team of programmers that he meets with regularly to discuss the progress of the project.

The data held about patients is personal and employees in the hospital are required to respect the confidentiality of the patients' data.

- 7 Apart from observation, describe **three** methods of researching the current system and for each give a benefit of using it.

Method 1 .....

.....

.....

Benefit .....

.....

.....

Method 2 .....

.....

.....

Benefit .....

.....

.....

Method 3 .....

.....

.....

Benefit .....

.....

.....[6]



- 8** After the data has been collected a data flow diagram will be produced. Using examples from the scenario, name and describe, including their use, the components of this data flow diagram.

.....[6

- 9 Explain the social and ethical implications of hospital workers being able to access patients' personal information.

[6]

**10** Describe a suitable test plan that Jasvir could use to test the developed system.

[5]

11 (a) Describe Jasvir's use of **calendars** in time management software when arranging a new meeting with the programmers.

.....[3]

- (b) Describe how **other** features of time management software would help to ensure the project is completed successfully.

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.....[5]

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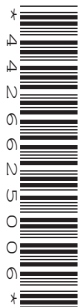
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## APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/12

## Paper 1

May/June 2017

**1 hour 15 minutes**

Candidates answer on the Question Paper.

No Additional Materials are required.

## READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

Do not use staples, paper clips, glue or correction fluid.

You may use an HB pencil for any diagrams, graphs or rough working.

DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

The number of marks is given in brackets [ ] at the end of each question or part question.

The businesses described in this paper are entirely fictitious.

This document consists of **15** printed pages and **1** blank page.

**Scenario 1****Questions 1, 2, 3, 4, 5, 6 and 7**

The University School of Jakarta has 350 students. The Principal of the school wants to introduce procedures whereby all her teachers will use computers to store records about their students and write reports. These reports are to be uploaded to the school's website so that parents can log in securely and view their child's report. When a teacher uploads their teaching group's reports they need to send a message to the Principal.

Students are assessed using teacher produced tests but answer on the computer screen. They sit at the computer and type in their responses. The teachers download the students' answers at the end of the assessment and mark them as usual. The results will be stored in a computer file.

One of the provisions of data protection legislation is that data should be kept secure. Ferdian, an ICT student, thinks that as each student has a student number consisting of three digits, it would be useful to disguise this in some way.

The ICT rooms which will be used for the assessments all need to have air conditioning systems.

- 1 A medium will need to be chosen to store the student files.

Tick the **four** most accurate statements given below.

|  | ✓ |
|--|---|
| A hard disk provides direct access.                                      |   |
| A CD ROM stores several Gigabytes of data.                               |   |
| A Blu-ray disk stores less data than a DVD.                              |   |
| A magnetic tape has quicker data access than a hard disk.                |   |
| A magnetic tape is a suitable medium for storing backups of server data. |   |
| A CD RW cannot be overwritten.   |   |
| Blu-ray disks are not used to store data.                                |   |
| A pen drive can store more data than a CD.                               |   |
| Flash memory cards are used in mobile (cell) phones.                     |   |
| Solid state drives are more prone to failure than magnetic media.        |   |

[4]

- 2 Tick the **four** most accurate statements given below about databases.

|  | ✓ |
|--|---|
| Data files are often converted to a common text format in order that they can be exported to another software package. |   |
| Validation is to check that data is reasonable.  |   |
| Verification is to check that data is correct.   |   |
| A range check is a verification check.   |   |
| Comparing two versions of the same input data is a type of verification.   |   |
| Charts are never exported from a database into another software package.   |   |
| OR and NOT are mathematical operators.   |   |
| It is only possible to sort data on one criterion.   |   |
| “Several to several” is a type of relationship.  |   |
| In order to create a relational database you have to identify a key field.   |   |

[4]

- 3 Apart from databases, describe, including their uses, **four** different types of software which will be needed by a teacher using the new procedures. Each use must be different.

1 .....

.....

.....

2 .....

.....

.....

3 .....

.....

.....

4 .....

.....

.....[4]



- 4 Discuss the advantages and disadvantages of carrying out student tests using computers compared with using pen and paper.

.....[6]

- 5 For Ferdian's first attempt at disguising the Student number he has developed a spreadsheet. This is shown below. The Student number is stored as a text string.

|   | D | E              | F | G | H | I | J | K                        |
|---|---|----------------|---|---|---|---|---|--------------------------|
| 1 |   | Student number |   |   |   |   |   | Disguised Student number |
| 2 |   | 456            |   | 4 | 5 | 6 |   | 654                      |
| 3 |   |                |   |   |   |   |   |                          |

In G2, H2 and I2, he has used different functions to extract parts of the Student number string. In K2 he has put these parts back together in reverse order.

- (a) Write down the formula he has used in cell G2.

= .....[2]

- (b) Write down the formula he has used in cell H2.

= .....[3]

- (c) Write down the formula he has used in cell I2.

= .....[2]

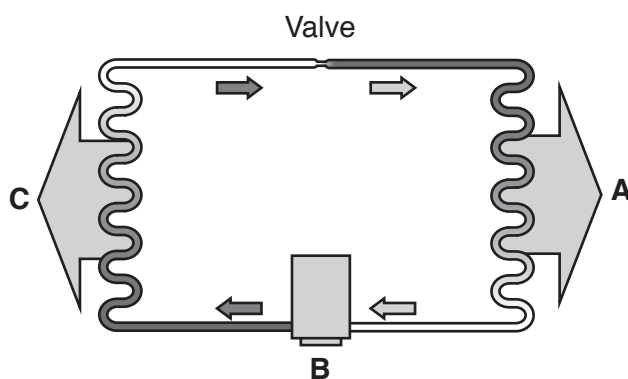
- (d) Write down the formula he has used in cell K2.

= .....[3]

**6** Explain the rights of an individual as set out in data protection legislation.

[5]

**7** The diagram shows a simple air conditioning system.



**(a)** Identify the components labelled:

A .....  
B .....  
C ..... [3]

- (b) There is a pressure sensor situated just before the refrigerant enters the valve. Describe how the microprocessor controls the valve.

.....

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.....[3]

**Scenario 2****Question 8, 9 and 10**

KL Newspapers owns the Malaysian Daily Moon. It uses the latest technology to print the magazine. It uses computerised plate making and typesetting techniques. Typesetting involves the editor using a computer to set the layout of a page.

The printing plant is on the same site as the editor's office.

KL employs a number of journalists to write articles. These journalists tend to work away from the editorial office gathering information to write their stories. Often they stay in hotels to be near to events as they happen. When they have completed their stories they send them to the editor for editing.

- 8 (a)** Describe how journalists would use ICT when creating and sending their stories to the editor.

[6]

- (b)** Describe how the editor would prepare the journalist's story ready for printing, including any typesetting techniques used.

[6]

9 Describe the drawbacks to the journalists of working away from the editorial office.

[4]

**10** Describe how a plate is produced before it is used in the printing process.

[2]

**Scenario 3****Questions 11, 12 and 13**

Ramon is the manager of the payroll section of a large company. The company has many departments. He has decided that the current payroll system is out of date and has employed Joanne, a systems analyst, to investigate the current system and develop a new one.

Ramon wants the system, as well as outputting payslips, to produce reports.

Ramon and Joanne will be using time management software to monitor the progress of this project.

After the system has been tested Joanne will need to produce an evaluation of it. One way of evaluating the system is to observe workers using the new system.



- 11** Discuss, giving examples of exception and financial reports, the reasons why Ramon would want different types of reports.

[8]

**12 (a)** Describe the different ways Joanne could carry out her observation of the new system.

.....

.....

.....

.....

.....

[2]

**(b)** Discuss the advantages and disadvantages of using observation to evaluate a system.

.....[5]

- 13** Using the stages of the systems life cycle as examples, describe how Gantt charts could be used to represent the progress of this project.

.....[8

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## APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/13

## Paper 1

May/June 2017

**1 hour 15 minutes**

Candidates answer on the Question Paper.

No Additional Materials are required.

## READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

Do not use staples, paper clips, glue or correction fluid.

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DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

The number of marks is given in brackets [ ] at the end of each question or part question.

The businesses described in this paper are entirely fictitious.

This document consists of **16** printed pages.

**Scenario 1****Questions 1, 2 and 3**

International Computers Lesotho is a rapidly expanding computer manufacturer based in Africa. They are currently considering the various ways ICT could be used to advertise their latest computer.

Jacob is the manager of the advertising department. Jacob has agreed to let his employees work compressed hours.

- 1 Tick the **four** most accurate statements about the use of ICT in advertising.

|   |   |
|---|---|
|   | ✓ |
| Customers have to have a computer and be connected to the internet to view posters on billboards. |   |
| A website can be expensive to maintain compared to other methods.                                 |   |
| Posters/presentations can only be seen in a limited number of places.                             |   |
| Posters cannot be defaced as easily as presentations in shopping malls.                           |   |
| Hard copy flyers are interactive.   |   |
| Printed posters have multimedia features.   |   |
| Websites and presentations are easier to update as you do not have to reprint many copies.        |   |
| A much wider area or potential customer base is covered cheaply by using flyers.                  |   |
| Emailed advertisements may be mistaken for spam.  |   |
| It is difficult to send the same message to many people at the same time if using email.          |   |

[4]

- 2 Tick the **four** most accurate statements about a company using someone else's website to advertise their products.

|   |   |
|---|---|
|   | ✓ |
| It is cheaper than employing a programmer to create and maintain it.  |   |
| Pop-ups may create unhappy customers who may avoid that company in future.  |   |
| Customers will use pop-up blocking software which does not allow pop-unders to appear.  |   |
| A pop-up does not appear to users until they close the page they are working on.  |   |
| The company's own website has a longer delay in updating or improving the advertising material.                                 |   |
| The customer regards pop-unders as less of an inconvenience than pop-ups.   |   |
| There is no way of linking pop-ups and pop-unders to the company's own website.   |   |
| The company has more control over the host's website than it would over its own.  |   |
| There may be so many other companies advertising on the host's website that the company's advertising has less space available. |   |
| Fewer people may see it if it's on someone else's website.  |   |

[4]

**3 (a)** Describe what is meant by working compressed hours.

.....[2]

**(b)** Discuss the benefits and drawbacks to the company and its workers of working compressed hours.

[8]



**Scenario 2****Questions 4, 5 and 6**

Maharashtra Fashions is a very large mail order catalogue company which sells a variety of clothes. They have recently changed to using the internet as their only method of selling goods.

In order to help their customers with any technical problems, Maharashtra Fashions is going to set up a call centre.

Davindra, a member of the ICT department, has been asked to create a simple spreadsheet. This will convert the customer's waist size from cm to the garment size Small, Medium or Large. A waist size that is less than 75 cm will cause "Small" to be displayed. A waist size between 75 cm and 95 cm will cause "Medium" to be displayed. A waist size greater than 95 cm will cause "Large" to be displayed.

- 4 (a) Apart from security issues, discuss the advantages and disadvantages to the **customer** of using online shopping.

[6]

- (b)** Apart from security issues, discuss the advantages and disadvantages to the **company** of online shopping.

[6]

- 5 (a) Apart from Computer Telephony Integration (CTI) software, describe **three** different types of software, including their use, which each telephony operator at the call centre may need to help them with their work.

Type 1: .....

.....

.....

Type 2: .....

.....

.....

Type 3: .....

.....

.....[3]

- (b) Describe the differences between the **two** types of call control used with CTI software.

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.....

.....[6]

6 (a) Below is part of the spreadsheet Davindra has created:

|   | A                  | B             | C | D               |  |
|---|--------------------|---------------|---|-----------------|--|
| 1 |                    |               |   |                 |  |
| 2 |                    |               |   |                 |  |
| 3 |                    | Waist<br>size |   | Garment<br>size |  |
| 4 |                    |               |   |                 |  |
| 5 |                    |               |   |                 |  |
| 6 | Raymond Barrington | 74            |   | Small           |  |
| 7 | Paula Wilkinson    | 77            |   | Medium          |  |
| 8 | Gustav Larson      | 98            |   | Large           |  |
| 9 |                    |               |   |                 |  |

Complete the following formula which should go in cell D6 such that it can be replicated easily.

=IF(B6<75, .....  
 .....  
 .....[6]

Here is a space for you to use for any working out you need.

- (b) Davindra wishes to develop her spreadsheet so that waist sizes with decimal values can be entered. These will then be rounded to become an integer.

Explain how she will use the spreadsheet to allow this to happen. Include in your explanation the change that will need to be made to the formula in D6.

.....

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.....[4]

**Scenario 3****Questions 7, 8, 9, 10 and 11**

Queen Mary's Hospital has recently decided to upgrade its patient records system. One of the uses of the new system will be to provide the patient's family doctor with information about the treatment received by the patient.

Jasvir, a systems analyst, has been asked to collect information about the current system and to develop a new improved system.

Jasvir has a team of programmers that he meets with regularly to discuss the progress of the project.

The data held about patients is personal and employees in the hospital are required to respect the confidentiality of the patients' data.

- 7 Apart from observation, describe **three** methods of researching the current system and for each give a benefit of using it.

Method 1 .....

.....

.....

Benefit .....

.....

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Method 2 .....

.....

.....

Benefit .....

.....

.....

Method 3 .....

.....

.....

Benefit .....

.....

.....[6]



- 8** After the data has been collected a data flow diagram will be produced. Using examples from the scenario, name and describe, including their use, the components of this data flow diagram.

.....[6

- 9 Explain the social and ethical implications of hospital workers being able to access patients' personal information.

.....[6]

**10** Describe a suitable test plan that Jasvir could use to test the developed system.

[5]

11 (a) Describe Jasvir's use of **calendars** in time management software when arranging a new meeting with the programmers.

[3]

[5]

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## APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/31

## Paper 3

May/June 2017

**1 hour 15 minutes**

Candidates answer on the Question Paper.

No additional materials are required.

## READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.

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Answer **all** questions.

The number of marks is given in brackets [ ] at the end of each question or part question.

The businesses described in this paper are entirely fictitious.

This document consists of **17** printed pages and **3** blank pages.

**Scenario 1****Questions 1, 2 and 3**

Joe has a home network with a number of computing devices and a large screen television connected to a router using wireless technology.

Joe uses his large screen television when playing online computer games. He has a remote control for the television.

1 The television remote control uses infrared to communicate with the television.

(a) Describe how data is carried by infrared from the remote control to the television.

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

(b) Describe the benefits of the remote control communicating with the television by infrared.

.....  
.....  
.....  
.....  
..... [2]

(c) There are other input devices which are more suitable for playing computer games.

Describe **two** such devices which could be connected to the television.

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

- 2 (a) Describe the features of Joe's router that enable a user to set up a home network with internet access.

[8]



- (b)** Describe how router software directs network traffic from a specific device on Joe's network to a server on the internet.

..... [6]

**3 (a)** Describe how spread spectrum transmission is used for a wireless connection to a network.

[4]

**(b)** Describe the benefits of using spread spectrum transmission.

[6]

(c) Identify **one** other use for spread spectrum transmission.

.....

..... [1]

**Scenario 2****Questions 4, 5, 6 and 7**

Doctors in a local hospital use an expert system to help with the diagnoses of patients' illnesses.

The expert system is kept up to date and modified as necessary by a knowledge engineer using a knowledge base editor.

The doctors can also consult with other doctors in hospitals in other towns using telephones or via the internet.

Computer systems are available in the hospitals for use in monitoring patients so that the doctors can do other tasks.

- 4 Explain why modifying a knowledge base could cause the expert system to produce inaccurate results.

..... [6]

**5** Describe how an expert system is used to help in the diagnosis of an illness.

[6]

- 6** Discuss the advantages and disadvantages of the different ways that the doctors could use the internet to consult with each other.

[8]

- 7 A doctor has requested that a patient's temperature and blood pressure be monitored continually by a computer system for a period of time.

Describe how the computer system would be used to monitor the patient.

[6]





**Scenario 3****Questions 8 and 9**

An online retailer stores data about its customers, its goods for sale and its financial details.

The retailer has a number of servers each dedicated to a particular role in its online business. For example, there is a web server to store the website and a database server to store the data required to operate the business.

Customers can access the online store from the internet using a web browser. To purchase goods, customers must create an account and provide their contact and payment details.

- 8** Explain how digital certificates are used to re-assure the user that the website is authentic.

..... [6]

- 9 The store tries to enforce a strict password policy with its customers to attempt to keep the passwords strong.

- (a)** Describe the characteristics of a strong password.

[4]

(b) Explain why a very strict password policy may cause problems.

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..... [4]

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**Scenario 4****Questions 10 and 11**

A software company has developed specialised software to model the economy of a country.

The company has developed prototypes of the software during the development process.

**10** Describe the stages in the process of prototyping the software model.

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..... [4]

**11** Discuss the benefits and drawbacks of using prototypes when developing the new software model.

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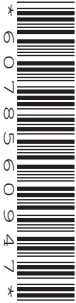
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## APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/32

## Paper 3

May/June 2017

**1 hour 15 minutes**

Candidates answer on the Question Paper.

No additional materials are required.

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Answer **all** questions.

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This document consists of **15** printed pages and **1** blank page.

**Scenario 1****Questions 1, 2, 3, 4 and 5**

An engineering research department designs nuclear reactors for producing electricity. It uses computer-based simulations running on a super computer to help predict how the design will operate when built.

Project management software is used to plan the construction of the new reactor and associated buildings.

The environment around the new reactor will be continually monitored for radiation and other environmental variables. The people who live in the area (local residents) surrounding the new reactor are to be kept informed about the building progress. They will be sent individual letters created from a database of all the local residents.

1 Explain why computer simulations are used when designing the new reactor.

..... [6]

- 2 (a)** Discuss the benefits and drawbacks of using a super computer to create and run the simulations used in nuclear research.

[6]

- (b)** Other than nuclear research, describe **two** different uses of super computers.

1 .....

2 ..... [2]

- 3** Describe how displaying the construction project activities in a Gantt chart can assist in the project planning.

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..... [5]

- 4** Mail merge is used to produce the letters that will be sent to local residents.

- (a)** Explain why there must be 100% accuracy in the data entry process when creating the database of local residents.

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..... [2]

- (b) (i)** The database of local residents is a flat-file database.

Explain why a flat-file database would have been used rather than a relational database.

[4]

- (ii) It has been decided to send letters to every resident in the whole region. The database is to be expanded to include more information about each resident.

Explain why a relational database would be preferred for the database.

[6]

- 5** Describe how ICT could be used to monitor the physical variables, apart from radiation, in the environment around the new reactor.

[8]

**Scenario 2****Questions 6, 7 and 8**

A multi-national company employs a number of representatives in its offices around the world.

The representatives must keep in regular contact with each other and the office staff to discuss confidential and urgent company matters.

The company provides Voice over Internet Protocol (VoIP) and video-conferencing systems for use by the representatives.



- 6 (a) One way of using VoIP is to use a purpose-built VoIP phone.

Describe **two** other ways that a representative could make a phone call using VoIP.

- 1 .....
- .....
- .....
- 2 .....
- .....
- ..... [2]

- (b) (i) Describe **four** benefits of the representatives using VoIP.

- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....
- ..... [4]

(ii) Describe **four** drawbacks of the representatives using VoIP.

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..... [4]

7 (a) Describe the hardware and software required in a video-conferencing system.

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..... [6]

**(b)** Explain why echo-cancellation is important in video-conferencing.

[3]

**8 (a)** Discuss reasons why the representatives use video-conferencing rather than using other methods of communication.

[6]

(b) Explain why many people may prefer **not** to use video-conferencing.

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..... [5]



**Scenario 3****Question 9**

An international company owns and manages hotels in major cities all over the world.

It has a central reservation system (CRS) which enables prospective guests to access its website using a web browser to choose and pay for hotel rooms online.

Guests who regularly stay in the hotels can set up an account with a user ID (user name) and password so that the hotel holds their personal and payment details.

- 9 (a) Describe **four** items of information stored in a CRS about the hotels that a guest would require when making a booking.

1 .....

.....

.....

2 .....

.....

.....

3 .....

.....

.....

4 .....

.....

..... [4]

- (b) Apart from the guest name and contact details, the user name (user ID) and password, describe **four** other items of information that the CRS might store about a guest who regularly stays in the hotels.

1 .....

.....

.....

2 .....

.....

.....

3 .....

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.....

4 .....

.....

..... [4]

- (c) The CRS is able to produce reports for the hotel management.

Describe **three** reports that the CRS would be able to create.

1 .....

.....

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2 .....

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3 .....

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..... [3]

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## APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/33

## Paper 3

May/June 2017

**1 hour 15 minutes**

Candidates answer on the Question Paper.

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

(b) Describe the benefits of the remote control communicating with the television by infrared.

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..... [2]

(c) There are other input devices which are more suitable for playing computer games.

Describe **two** such devices which could be connected to the television.

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

- 2 (a) Describe the features of Joe's router that enable a user to set up a home network with internet access.

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- (b)** Describe how router software directs network traffic from a specific device on Joe's network to a server on the internet.

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[4]

**(b)** Describe the benefits of using spread spectrum transmission.

[6]

(c) Identify **one** other use for spread spectrum transmission.

.....

..... [1]

**Scenario 2****Questions 4, 5, 6 and 7**

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The expert system is kept up to date and modified as necessary by a knowledge engineer using a knowledge base editor.

The doctors can also consult with other doctors in hospitals in other towns using telephones or via the internet.

Computer systems are available in the hospitals for use in monitoring patients so that the doctors can do other tasks.



- 4 Explain why modifying a knowledge base could cause the expert system to produce inaccurate results.

..... [6]

**5** Describe how an expert system is used to help in the diagnosis of an illness.

..... [6]

- 6** Discuss the advantages and disadvantages of the different ways that the doctors could use the internet to consult with each other.

[8]

- 7 A doctor has requested that a patient's temperature and blood pressure be monitored continually by a computer system for a period of time.

Describe how the computer system would be used to monitor the patient.

..... [6



**Scenario 3****Questions 8 and 9**

An online retailer stores data about its customers, its goods for sale and its financial details.

The retailer has a number of servers each dedicated to a particular role in its online business. For example, there is a web server to store the website and a database server to store the data required to operate the business.

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..... [6]

- 9 The store tries to enforce a strict password policy with its customers to attempt to keep the passwords strong.

- (a)** Describe the characteristics of a strong password.

[4]

(b) Explain why a very strict password policy may cause problems.

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..... [4]



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**Scenario 4****Questions 10 and 11**

A software company has developed specialised software to model the economy of a country.

The company has developed prototypes of the software during the development process.

**10** Describe the stages in the process of prototyping the software model.

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**11** Discuss the benefits and drawbacks of using prototypes when developing the new software model.

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