

**Pearson Edexcel**  
**International Advanced Level**

**Applied ICT**

**International Advanced Level**  
**Unit 3: The Knowledge Worker**

22 – 26 May 2017

**Time: 2 hours 30 minutes**

Paper Reference

**WIT03/01**

**You must have:**

Cover sheet, short treasury tag, KoolKiwi\_exam.xlsx, Timings\_exam.txt

**Instructions**

- Complete your candidate details on the cover sheet provided.
- All tasks must contain your name, candidate number, centre number and activity number.
- At the end of the examination:
  - all printouts should be placed in the correct order
  - use a treasury tag to attach your printouts (**as shown**) to page 2 of the cover sheet.

**Information**

- The total mark for this paper is **90**.
- There are **four** activities in this examination totalling **88** marks. **Two** further marks are allocated to Standard Ways of Working.
- The marks for **each** question are shown in brackets
  - use this as a guide as to how much time to spend on each question.
- Questions labelled with an **asterisk (\*)** are ones where the quality of your written communication will be assessed
  - you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

**Advice**

- Read through the scenario carefully.
- Work through the activities in order.
- Attempt **ALL** the activities.
- Label your printouts clearly as instructed.
- Printing must be undertaken within the examination time.

Turn over ►

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## Scenario

### The Queen of the Rocks

Since its rediscovery 15 years ago the trilogy 'The Queen of the Rocks' has become a sensation. Written by Wallace Bacon, it plots the adventures of an imp, Princess Eareal, and her two friends, Ossibal and Ortant. They set out to find the evil sorceress, Ervios, who has cast a spell on their home village, Tiffany Dell.

Following the success of the books and their epic nature, the successful director Jack Peterson decided to make three films. Each of the films was based on a book in the trilogy, so he decided to use his home country New Zealand to provide the setting.

The first two films were a box office success. The stunning scenery of New Zealand was one of the factors that made the first two films more popular than the books.

Before the release of the third film in the series, the New Zealand Tourist Board noticed an influx of tourists who wanted to visit the films' locations. The tourist board improved access to the film sites and persuaded the film company to leave behind some of the props. They provided guides, rebuilt sets and put in additional attractions at some of the sites.

'Kool Kiwi Tours' is a British-based company that specialises in New Zealand holidays. Their tour designer, Emma Babb, has been given the task of designing a two-week 'The Queen of the Rocks Tour', visiting as many of the sights as feasible. Emma has contacted an airline company to see which aircraft are available for charter flights. After discussion with the airline, she has decided to fly from Heathrow to Auckland, stopping at Singapore. She will schedule one tour a week for nine weeks, starting in January, which is summertime in New Zealand. Take-off and landing slots at Heathrow and Auckland mean that the plane will land in Auckland at 13:30 of day 1 and will take off from Auckland at 19:00 on day 13.

The possible attractions are described in the following table. Emma has inspected all the attractions and has made an estimate of how long the visits should last.

Name	Description	Location	Visit Time
Tiffany Dell	The preserved set for the Imp village, which was created for the start of the movie and also the home-coming.	Arthur's Pass South Island	5 hours
Mount Ted	One scene was filmed on location at one of the lesser known volcanoes in New Zealand. The ledge they used for filming is natural and about 100 feet down inside the crater of the volcano. The tourist board built a lift and visitors can actually walk along the ledge.	Mount Cook South Island	3 hours
Maze of Tunnels	Although not strictly a maze, this scene was filmed in a series of connected caves. Visitors are invited to visit the caves to try and solve the maze.	Waitomo North Island	4 hours
Flight of the Imps	This section of the film was filmed on a farm on the North Island. It involved the actors being attached to a zip wire. The zip wire has been replaced by a cable with carriages attached. Visitors can ride the cable and reconstruct the flight.	Taupo North Island	3 hours
Living Forest	A walk through the Living Forest where visitors can experience some of the frightening effects displayed in the film. The walk is two hours.	Blenheim South Island	2 hours
Indigo Rapids	Eight-seater rafts have been constructed that are steered by experienced staff. Visitors can shoot the rapids, just like the Imps in the film.	Westport South Island	4 hours
Salmon Run	The props for the film are exhibited at the Queen of the Rocks museum in Wellington. Visitors can be filmed riding the salmon, as the Imps did in the film.	Wellington North Island	5 hours

Sandstone Rock	The tourist board did not need to enhance this site at all as it is a natural beach. The visitors simply have a day on the beach.	Napier North Island	7 hours
Slowhand Falls	Slowhand Falls appears in the third film. Visitors can walk through the waterfall, swim in the lake or relax in the hot pools.	Rotorua North Island	5 hours
Imp Place	Imp Place did not appear in the film but is a specially built theme park based on the film. It has water rides, roller coasters, shops, cafes and a boating lake.	Hamilton North Island	7 hours

Kool Kiwi Tours has a contract with a New Zealand coach company to provide coaches with 49 seats for transport between the locations. It has also contacted local hotels to get prices for accommodation. The coach company has sent Emma data about journey times. This data is an average of the journey times between locations, using times recorded over the last five years.

Some of the attractions are on the North Island and some of them are on the South Island. To cross between the islands, a ferry is taken that travels between Picton and Wellington adding 4 hours and 50 minutes, which is included in the average journey time.

Figure 1 is a map of New Zealand. The possible locations of the tourist attractions are shown across the north and south of the island.



**Figure1**

Emma has started to create a model to help her decide which attractions to visit and the order in which they should be visited. However, she was called away to Los Angeles to rehouse a tour whose hotel had burnt down. She has asked you to complete the model and make recommendations to her when she returns.

The model contains the following worksheets.

Worksheet	Description
Home	The 'Home' worksheet is a summary page where the order of visits is set. It will also keep track of which attractions have been visited and how many times. Each attraction should only be visited once and the more attractions visited the better.
Timings	This will contain a timings matrix showing the average time taken to travel between the attractions.
Time Calculations	This worksheet will calculate the timings of the visits and the travel time between them.
Attractions	This worksheet contains information about the attractions.

**Some cells in the model are password protected. Should you wish to experiment with the model, the password is *edexcel*. Be aware that if you change the contents of any protected cell the model may not work.**

## Instructions to candidates

All printouts **MUST** have a header and a footer. The header must contain the activity number. The footer must contain your name, candidate number and centre number.

Minimum font size of 10 should be used throughout.

All spreadsheet printouts should show gridlines and row and column headers.

For some of your spreadsheet printouts you may need to adjust column widths. To do this you will need to unprotect the worksheets. The password is *edexcel*.

## Your Task

You have been employed to complete the model and use it to make recommendations to Emma about the 'Queen of the Rocks Tour' of New Zealand.

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### Activity 1 – Understanding the situation (suggested time 25 minutes)

Read the scenario carefully.

On **one** sheet of A4:

- (a) Using a numbered list, state **ten** pieces of information from the scenario that are important to the working of the model. (10)
  
- (b) State **three** factors that could lead to inaccuracies in the timings for the trips Emma is planning. (3)
  
- (c) Give **three** data sources you will use and state the data each provides. (3)

**Save** and **print** your answer.

**(Total for Activity 1 = 16 marks)**

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## Activity 2 – Completing the model (suggested time 40 minutes)

You should ensure that each printout is on **one** sheet of A4 only.

The model is stored as **KoolKiwi\_exam**

Open the spreadsheet model and familiarise yourself with it.

### (a) Timings

Emma has produced a text file containing the average time of journeys between attractions. You will find this data on the text file **Timings\_exam.txt**

- Import the time data into cells E8:Q20 of the 'Timings' worksheet.
- Print off columns D-I and rows 7-20 of the 'Timings' worksheet showing **data**.

(1)

### (b) Time Calculation 1

Cells G9-J18 of the 'Time Calculation' worksheet contain the timings of the visits.

Cells G9-G18 contain the visit start day.

This is calculated by checking whether the previous journey end time (F9-F18) plus the visit duration (cells I9-I18) is less than or equal to 7pm (19:00), then the value will be the same as the previous journey end day, otherwise the visit will start on the next day.

- Enter a formula into cell G9 to calculate the visit start day.
- Replicate this formula to cell G18.

Cells H9-H18 contain the visit start time.

This is calculated by checking whether the previous journey end time (F9-F18) plus the visit duration (cells I9-I18) is less than or equal to 7pm (19:00), then the value should be set to 7am (07:00), otherwise the visit will start when the previous visit ends.

- Enter a formula into cell H9 to calculate the visit start time.
- Replicate this formula to cell H18.
- Print off columns G and H and rows 9 to 18 of the 'Time Calculation' worksheet showing **formulae**.

(9)



(c) **Time Calculation 2**

Cells I9-I18 contain the visit duration. The name of the attraction to be visited will appear in cells A9-A18 and this should be used to look up the values in cells A7-D18 of the 'Attractions' worksheet.

- Enter a formula into cell I9 to look up the visit duration.
- Replicate this formula to cell I18.

Cells J9-J18 contain the visit end time and this is calculated by adding the visit duration to the visit start time.

- Enter a formula into cell J9 to calculate the visit end time.
- Replicate this formula to cell J18.
- Print off columns I and J, rows 9 to 18 of the 'Time Calculation' worksheet showing **formulae**.

(6)

(d) **Time Calculation 3**

Cells L9-O18 of the 'Time Calculation' worksheet contain calculations to see if the next journey can be made before 7pm (19:00).

Cells L9-L18 contain the day this journey could start. This is copied from column G 'Visit Start Day'.

- Enter a formula into cell L9 to calculate the journey start day.
- Replicate this formula to cell L18.

Cells M9-M18 contain the journey start time and this is the time the visit finishes and is copied from column J 'Visit End Time'.

- Enter a formula into cell M9 to calculate the next journey start time.
- Replicate this formula to cell M18.

Cells N9-N18 hold the possible journey duration for the next journey. The formula will check whether this could be completed before 7pm (19:00). If it can the formula will copy the time from the 'next journey time' in column K, otherwise the value zero is stored in the cell.

- Enter a formula into cell N9 to calculate the journey start time.
- Replicate this formula to cell N18.

Cells O9-O18 contain the journey end time and this is calculated by adding the journey duration (column N) to the journey start time (column M).

- Enter a formula into cell O9 to calculate the journey end time.
- Replicate this formula to cell O18.
- Print off columns L to O, rows 9 to 18 of the 'Time Calculation' worksheet showing **formulae**.

(9)

(e) **Using the Model**

- On the 'Home' worksheet, cells B20 to B29 contain drop down boxes where the attractions can be selected. Use these to select the order in which the attractions are visited. Try to ensure as many attractions are visited as possible and that they are visited only once
- Print off columns B17 to F31 of the 'Home' worksheet with your solution showing.
- **Save** your solution.

(8)

(f) **Printouts**

- Collect your printouts together, ensure you have printed them correctly and that they are in the order you have been asked to print them.

(3)

Ensure you have saved your solution, you will need it in Activity 3.

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**(Total for Activity 2 = 36 marks)**

### Activity 3 – Costs/Revenue (suggested time 40 minutes)

Emma has made some changes to her original spreadsheet model to find out how much profit or loss is made on the 'The Queen of Rocks' tours.

#### Attractions

She has added two columns to the worksheet to calculate the entry fee for the attractions.

There are four new worksheets.

#### Passengers

Predicts how many customers would book the holiday in each of the nine weeks at various prices.

#### Hotels

Calculates the cost of each passenger for each of the hotels they may stay at.

#### Aircraft

Shows the planes available, the charter cost and the capacity of each plane type.

#### Costs/Revenue

Calculates the total costs of the trip and the revenue made at the chosen cost.

##### (a) Hotels

The number of nights, customers would stay at a particular hotel will be held in cells B7:B19 on the 'Hotels' worksheet. The cost per night will be held in cells C7:C19.

- In cell D7 of the 'Hotels' worksheet, enter a formula to calculate the cost for each customer at the Tiffany Dell Hotel.
- Replicate this formula to cell D19.
- Print off columns A and D, rows 7 to 18 of the 'Hotels' worksheet showing **formulae**.

(1)

##### (b) Attractions

The number of visits customers would make to a particular attraction will be held in cells F7:F18 on the 'Attractions' worksheet. The entry fee will be held in cells E7:E18.

- In cell G7 of the 'Attractions' worksheet, enter a formula to calculate the entry fees for each customer at the Tiffany Dell Attraction.
- Replicate this formula to cell G18.
- Print off columns A and G, rows 7 to 18 of the 'Attractions' worksheet showing **formulae**.

(1)

(c) **Costs/Revenue**

Rows 18 and 19 of the 'CostsRevenue' worksheet contain the potential customers for each week and the capacity of the plane.

- Enter a formula into cell B20 of the 'CostsRevenue' worksheet to select the smaller of the two values held in cells B18 and B19.
- Replicate the formula to cell J20.

The number you have just calculated is the number of customers predicted on a particular trip. The capacity of the coach is held in row 22.

- Enter a formula into cell B23 of the 'CostsRevenue' worksheet to calculate the number of coaches needed in that week.
- Replicate this formula to cell J23.

Row 36 of the 'CostsRevenue' worksheet should contain the total cost for the particular week.

- Enter a formula into cell B36 to add up all the costs for that week.
- Replicate the formula to cell J36.
- Print off columns B and J, rows 20, 23 and 36 of the 'CostsRevenue' worksheet showing **formulae**.

(10)

(d) **Using the Model**

- On the 'Home' worksheet rows 7 to 16 are hidden.
- Unhide rows 7 to 17.

There are a number of spinners that allow you to select different aircraft types for different weeks and one to select a price to charge the customers.

- With your solution from Activity 2, use the spinners to experiment with aircraft type and prices to make the largest profit you are able to.
- Print off B7 to L31 from the 'Home' worksheet with your solution showing **values**.

(6)

(e) **Printouts**

Collect your printouts together, ensure you have printed them correctly and that they are in the order you have been asked to print them.

(3)

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**(Total for Activity 3 = 21 marks)**

**\*Activity 4 – Report (suggested time 35 minutes)**

Write a report for Emma, making recommendations about the order of the visits, the type of aircraft and the cost per person.

The report should include:

- suitable titles and section headers
- an introduction explaining what the report is about
- your recommendations, with justifications of:
  - the order of visits
  - which aircraft to use each week
  - how much to charge for the holiday
- an evaluation of the model and suggestions on how to improve it.

Proofread your report.

Marks will be awarded for the quality of your written communication.

**Save and print your work.**

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**(Total for Activity 4 = 15 marks)**

**Standard Ways of Working**

**All printouts must contain the activity number, your name, candidate number and centre number.**

**Pages must be securely fastened to the cover sheet and in the correct order.**

**Minimum font size of 10 should be used for all word processed documents.**

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**(Total for standard ways of working = 2 marks)**

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**TOTAL FOR PAPER = 90 MARKS**



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