



Cambridge IGCSE™

COMPUTER SCIENCE

0478/22

Paper 2 Problem-solving and Programming

May/June 2022

PRE-RELEASE MATERIAL

No additional materials are needed.

This material should be given to the relevant teachers and candidates as soon as it has been received at the centre.

INSTRUCTIONS

- You should use this material in preparation for the examination.
- You should attempt the practical programming tasks using your chosen high-level, procedural programming language.

This document has **2** pages.

Your preparation for the examination should include attempting the following practical tasks by **writing and testing a program or programs**.

A program is needed to allow a Wildlife Park to sell tickets. A booking consists of one or more tickets for the same day(s) and can be made up to a week in advance. A booking can be made for a visit of one day or two consecutive days. A booking can have extra attractions included. A booking will be valid for the day(s) chosen only.

| Ticket type | Cost for one day | Cost for two days |
|---|------------------|-------------------|
| one adult | \$20.00 | \$30.00 |
| one child (an adult may bring up to two children) | \$12.00 | \$18.00 |
| one senior | \$16.00 | \$24.00 |
| family ticket (up to two adults or seniors, and three children) | \$60.00 | \$90.00 |
| groups of six people or more, price per person | \$15.00 | \$22.50 |

| Extra attraction | Cost per person |
|---|-----------------|
| lion feeding | \$2.50 |
| penguin feeding | \$2.00 |
| evening barbecue (two-day tickets only) | \$5.00 |

Write and test a program or programs for the Wildlife Park:

- Your program or programs must include appropriate prompts for the entry of data. Data must be validated on entry.
- All outputs, including error messages, need to be set out clearly and understandably.
- All variables, constants and other identifiers must have meaningful names.

You will need to complete these **three** tasks. Each task must be fully tested.

Task 1 – displaying the ticket options and the extra attractions available

Set up your program to:

- display the options, attractions and prices for one-day tickets
- display the options, attractions and prices for two-day tickets
- show the days available for booking; assume that there are tickets available for any valid day.

Task 2 – process a booking

Extend your program for **Task 1** to:

- input the tickets and extra attractions required, then calculate the total cost of the booking
- allocate a unique booking number
- display the booking details, including the total cost and the unique booking number
- repeat as required.

Task 3 – ensuring each booking is the best value

Check that the total for each booking gives the best value and offer an alternative if this is **not** the case. For example, buying two family tickets is better than a group ticket for a group of 10 that includes four adults and six children.

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