



Oxford Cambridge and RSA

# **Level 3 Certificate Quantitative Reasoning (MEI)**

**H866/01** Introduction to Quantitative Reasoning

Insert

**Wednesday 17 May 2017 – Morning**



## **NOTES FOR GUIDANCE (CANDIDATES)**

- This insert contains a copy of the pre-release material for use with the question paper.
- This document consists of **4** pages. Any blank pages are indicated.

## **INSTRUCTION TO EXAMS OFFICER/INVIGILATOR**

- Do not send this Insert for marking; it should be retained in the centre or recycled.  
Please contact OCR Copyright should you wish to re-use this document.

## Lotteries and raffles

In the UK National Lottery players enter by selecting 6 numbers from 1 to 59. Twice each week numbers are selected at random on a television show. To win the jackpot players must match all 6 numbers. If they match fewer numbers they may win a smaller amount. Players may enter multiple times for each draw, choosing a different set of numbers each time. Many players enter every draw. The outcome of each draw is independent.

People who enter the lottery are also entered into a raffle. In this type of game a fixed number of entries is selected at random to win a prize.

Many other countries have similar lottery and raffle systems. There is also a Europe-wide game called “Euromillions” which has a similar lottery and raffle structure to the UK National Lottery.

Although some prizes are very large the probability of winning the jackpot is very, very small; for example the probability of winning the jackpot in the UK National Lottery is about 1 in 45 million. Both lotteries and raffles are designed so that if they are played many times the amount a player would expect to win is less than the amount he or she would spend.

## Glaciers

A glacier is a large body of ice found in very cold environments. Some of the largest glaciers are huge; they can be around  $10\,000\text{ km}^3$  or  $1 \times 10^{16}$  litres; that is 10 million billion litres!

Many glaciers are currently melting, with the water flowing into glacial lakes. Climate scientists often measure the amount of melted water coming out of a glacier to see if there is evidence of global warming. One possible consequence of global warming is that sea levels will rise.

## Car Rental

When renting a car, various factors are taken into account for the cost, including:

- the number of passengers the car can take,
- the storage capacity,
- the fuel efficiency.

Fuel efficiency can be measured in miles per gallon (MPG). Normally two figures are given. Fuel efficiency for “urban driving” and fuel efficiency for “motorway driving”.

For example, the advertisement below shows that the Chevrolet Aveo can carry four passengers, has a storage capacity of 12 cubic feet, an “urban driving” fuel efficiency of 25 miles per gallon and a “motorway driving” fuel efficiency of 34 miles per gallon.

<b>Chevrolet Aveo</b>   X 4  12 cb ft <b>MPG</b> 25/34	<b>Ford Focus</b>   X 5  13 cb ft <b>MPG</b> 27/37	<b>Chrysler 200</b>   X 5  14 cb ft <b>MPG</b> 21/30	<b>Ford Fusion</b>   X 5  16 cb ft <b>MPG</b> 23/33
<b>Chevrolet Impala</b>   X 5  19 cb ft <b>MPG</b> 18/30	<b>Ford Crown Victoria</b>   X 6  21 cb ft <b>MPG</b> 16/24	<b>Ford Mustang</b>   X 4  9 cb ft <b>MPG</b> 19/30	<b>Dodge Grand Caravan</b>   X 7  33 cb ft <b>MPG</b> 17/25
<b>Jeep® Liberty</b>   X 5  25 cb ft <b>MPG</b> 15/21	<b>Jeep® Grand Cherokee</b>   X 5  35 cb ft <b>MPG</b> 16/23	<b>Chevrolet Traverse</b>   X 7/8*  24 cb ft <b>MPG</b> 17/24	<b>Ford 12-Pass Van</b>   X 12  14 cb ft <b>MPG</b> 13/17

**Copyright Information**

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website ([www.ocr.org.uk](http://www.ocr.org.uk)) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact the Copyright Team, First Floor, 9 Hills Road, Cambridge CB2 1GE.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.