1 number patterns You get one point for each correct answer -maximum 3 points
(a) 36
(b) 96
(c) 10

2 word meanings You get one point for each correct answer -maximum 5 points
(a) B (harmonious)
(b) D (ardent)
(c) C (amass)
(d) B (perpetual)
(e) C (supplant)

## 3 logical deduction You get one point for each correct answer -maximum 3 points

(a) (Who's on duty) C
(b) (bee boxing) D
(c) (Mr Cakeliner) C

> Bonus Question: We will accept either C, D or E (we don't know if Cakeliner's stomach is 'average'). *

You get one point for this correct answer

## 4 Spaceport You get one point for each correct

## answer -maximum 2 points

## Question 1

C (485)
the number of craft landing in $3000=$ private + state $=1250+1350=2600$
the number of craft landing in $2090=$ private + state $=1475+1510=3085$

The difference in the number of craft landing in 2090 and $3000=3085-2600=485$

## Question 2

D (8.3\%)
the total number of craft in $2090=155+125+$ $1475+1610=3365$
$+125=280$

The percentage of craft repaired in $2090=(280$ / 3365) x $100=8.3 \%$

5 Spaceport passengers You get one point for each correct answer -maximum 2 points

## Question 1

D (40\%)

The total number of passengers traveling in 2010 was $1,542,000+985,000=$ 2,527,000

The percentage of travelers arriving in state craft = (the number of travelers arriving in state craft / the total number of travelers) x 100

# $=(985 / 2527)=38.98 \%$ which is approximately 40\% 

## Question 2

E (47\%)

# Number of passengers on state craft in 2012 was 1,750,000 

Overall number of passengers in 2012 was 1,750,000 + $1995000=$ 3745000

The percentage of passengers on state craft was (1,750,000 / 3745000) x $100=46.73 \%$ which is approximately 47\%

# 6 Hackers You get one point for each correct answer -maximum 4 points 

## Question 1 D (24.1)

## Question 2 C (27.1)

## Question 3 A (feb)

## Question 4 C (36.5)

# 7 Fruit You get one point for each correct answer -maximum 4 points 

## Question 1 D (65)

## Question 2 C (2002)

## Question 3 A (2000)

## Question 4 C (2002)

## 8 Shore leave You get one

 point for this correct answer
# 72 people went to the bar and 14 people went to the beach. 

# The first thing is to make this question an equation. The equation is $x+y=86$. $x$ is the larger group and $y$ is the 

smaller group. So, $y=86-x$. So,
$x+86-x=86$. If the first statement is true then $1 / 4(x)>y$. Since $y=86-x$, then $1 / 4(x)>86-x$. Now find out the greatest possible number that will satisfy the equation $1 / 4(x)>86-x$. The largest number y could be is 17. The smallest number $x$ could be is 69 .
If $c$ ) is true, then one of the groups must be even since \"couples\" are the multiples of 2 ( 1 couple consists of 2 people, 2 couples
consists of 4 people). Then, you figure out that 1 group affects the other group. If there is 1 more person in group $x$, then there is one less person in group $y$. So, that means that both group must be even or else both groups are odd and no group will satisfy c). So x must consist of $70,72,74,76$, $78,80,82,84$, or 86 people and y must consist of 16,14 , $12,10,8,6,4$, 2 , or 0 people. Now try to make the groups satisfy e). Substitute c for

## Written by NHA

Friday, 08 February 2013 16:46 - Last Updated Friday, 08 February 2013 16:52

## young people and o for old

 people. The equation is $80=c$. So, o+c equals the number of people in one of the groups. If $\mathrm{c}=8 \mathrm{o}$, then that will mean $0+80$ equals the number of people in one of the groups. Then, simplified the equation.$0+80=90$.
So 90 equal the number of people in one of the groups. So one of the groups has to be a multiple of 9 . Since y consists of a group that has 16 people or under, then the only multiple

# of 9 is 9 . But the groups have to 

 consist of an even number of people, so group x must satisfy e). The only multiples of 9 above 70 and under 86 are 72 and 81 . But, the number has to be even. So, group x consists of 72 people and $y$ consists of 14 people.
## 9 CIRCUITS You get one point for each difference spotted -maximum 12 points



## Footnotes

## *Mr Cakeliner is now

## employed by research

 scientists as a permanent replacement for the outdated LD50 test.