SOME CRYPTOGRAPHIC PUZZLES

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Puzzle 1

An automatic card shuffler always rearranges the cards in the same way if the setting is the same. A set of twelve cards bearing the letters GOLDENBINARY is put through the machine, and the cards, in the order in which they emerge, are put through the machine a second time. They come out ANINOYGRDEBL. What message did the cards convey after the first operation, assuming the setting is left unchanged for the second operation?

Puzzle 2

The letters of the alphabet are converted into their International Morse Code equivalents, with a space between each pair of letters and two spaces between each pair of words. Each pair of elements (for example, dot-space, dash-dot and so on) is then assigned a number from 1 to 9 (for example, 5 may correspond to dash-dot, and 3 to space-dash). A message written in this system becomes: 5 1 2 5 3 7 4 2 9 3 2 2 8 2 3 1 4 6 3 7 3 7 3 2 5 7 4 2 3 4 6 4 2 8 1 4 7. What pair of elements corresponds to each number, and what does the message say?

For convenience, the International Morse Code is given below:

A dot dash
B dash dot dot dot
C dash dot dash dot
D dash dot dot
E dot
F dot dot dash dot
G dash dash dot
H dot dot dot dot
I dot dot
J dot dash dash dash
K dash dot dash
L dot dash dot dot
M dash dash
N dash dot
O dash dash dash
P dot dash dash dot
Q dash dash dot dash
R dot dash dot
S dot dot dot
t dash
U dot dot dash
V dot dot dot dash
W dot dash dash
X dash dot dot dash
Y dash dot dash dash
Z dash dash dot dot

Puzzle 3

Sixteen and column 3. The word ending on this series of this same word. The word

Puzzle 4

The word on the left are red with a second letter, are red with a second letter the numbers.

Puzzle 5

A certain consulting system system uses a short phrase to encipher the phrase "me death"

Puzzle 6

For having a tag on his tags, gaining position
Puzzle 3

Sixteen letters are written in a four-by-four square with rows and columns labeled 1 through 4. Thus, a letter in the second row and the third column can be converted into the pair of numbers 2 3. The word LUMBERJACK is converted into a series of numbers using these co-ordinates, and the number 1 is added at the beginning of this series and the number 4 at the end of this series. This new series of twenty-two numbers is broken up into pairs, and reconverted into letters using the same four-by-four square; the result is B E S O L K H C U A L. Another word is similarly treated, using the same square, but with a 4 added at the beginning and a 1 at the end. This comes out T M O C H R B N S E. What is the original word?

Puzzle 4

The words of a saying are written one below the other, lined up on the left. The initial letters are then taken off, followed by the second letters, etc., blanks being skipped. For example, 'Roses are red violets are blue' becomes by this process R A R V A B O R E I R L S E D O E U E L E S E T S. Read the following:


Puzzle 5

A certain quotation containing 26 letters is written below a normal alphabet and used for the cipher equivalents of a simple substitution system. (Note that a cipher letter may stand for more than one plain letter with this scheme.) These equivalents are then used to encipher the quotation. For example, 'Give me liberty or give me death' becomes:

\[
\begin{align*}
A & \rightarrow B C D E F G H I J K L M N O P Q R S T U V W X Y Z \\
G I V E & \rightarrow M E L I B E R T Y O R G I V E M E D E A T H \\
L B D M Y & \rightarrow M I B T I M V M T R V L B D M Y M E M G M I
\end{align*}
\]

What message is given by Y I Y V N E A S L R O E E E E U A I Y V A U A U A L?

Puzzle 6

For haggling purposes a curio dealer enciphered the cost prices on his tags, replacing each digit by a letter. To improve his bargaining position, a shrewd customer noted the letters on the tags of
three items, and at various times casually asked the price of each. The tags read NL, MI, CR, IK and AP, EI, and the prices asked were respectively $39.69, $53.46 and $87.75. The customer correctly assumed that these all represented the same percentage mark-up. What did these items cost?

Puzzle 7

The word ALUMINUM has the pattern 12345634 since the third letter is the same as the seventh letter, and the fourth is the same as the last, the others being all different. The word MOLECULE has the same pattern. Put them together and you get an ALUMINUM MOLECULE. Try to solve the pattern pairs below, aided by the clues.

1. 1 2 2 3 4 5 3 6 Wrongdoer taken into custody.
2. 1 2 3 1 4 5 3 6 Lady flier who cannot tell a lie.
3. 1 2 3 2 1 4 5 6 Monster threatening evil.
4. 1 2 3 2 4 2 5 6 Something denied to the military.
5. 1 2 3 2 4 5 6 3 Tourists in native costumes.
6. 1 2 3 3 4 5 3 6 Fighters easily taken in.
7. 1 2 3 4 3 5 1 6 Unexpected pardon.
8. 1 2 3 4 5 1 2 6 Shoulder bone that has been repaired.
9. 1 2 3 4 5 3 1 6 Minor battle along the shore.
10. 1 2 3 4 5 3 4 6 Portrait in oils done with skill and taste.
11. 1 2 3 4 5 4 2 6 Witty prestidigitator.
12. 1 2 3 4 5 6 2 1 Disadvantaged scholars.
13. 1 2 3 4 5 6 2 3 Signals given in bull-fighting.
14. 1 2 3 4 5 6 3 1 Signs that might make diagnosis difficult.
15. 1 2 3 4 5 6 5 3 Nurseryman afflicted with rickets.

The solutions to these seven puzzles can be found in the Answers and Solutions at the end of this issue.