Şcoala cu clasele I-VIII Nr. 29 „Nicolae Romanescu" Craiova

CONCURSUL INTERJUDEŢEAN „MICUL ARHIMEDE"
Ediţia a X-a - decembrie 2011
Clasa a VI-a
BAREM DE CORECTARE

Of. 10 p

Partea I $10 \times 5p = 50p$

NR. ITEM	RASPUNS CORECT
1	D
2	D
3	C
4	A
5	B
6	C
7	E
8	D
9	B
10	A

II

11. n = nr de trei cifre

$n = 7c_1 + 1$

$n = 8c_2 + 4$

$n = 9c_3 + 7$ — — — 3p

$n+20 = 7c_1 + 21 \Rightarrow n+20 \vdots 7$ — — — 3p

$n+20 = 8c_2 + 24 \Rightarrow n+20 \vdots 8$ — — — 3p

$n+20 = 9c_3 + 27 \Rightarrow n+2 \vdots 9$ — — — 3p

n+20 = multiplu comun pt 7, 8 și 9 — — — 2p

cmmmc (7, 8, 9) = 504 — — — 2p

$n+20 = 504k$ — — — 2p

$k=1 \Rightarrow n = 484$ — — — 1p

$k=2 \Rightarrow n = 988$ — — — 1p

20p

12 a) $AB = AA_1 + A_1A_2 + A_2A_3 + \dots + A_nB = 2011$ — — — 2p

$2 + 2 + 2^2 + 2^3 + \dots + 2^{n-1} + A_nB = 2011$ — — — 2p

$S = 2 + 2 + 2^2 + \dots + 2^{n-1} \Rightarrow$ — — — 2p

$2S = 2^2 + 2^2 + 2^3 + \dots + 2^n \Rightarrow S = 2^n$ — — — 4p

dar $2^{10} < 2011 < 2^{11} \Rightarrow 2^{10} + A_nB = 2011$ — — — 4p

$n = 10$ — — — 2p

b) $AA_k = AA_1 + A_1A_2 + \dots + A_{k-1}A_k = 2 + 2 + 2^2 + \dots 2^{k-1} = 2^k$ — — — 2p

$A_kA_{k+1} = 2^k \Rightarrow A_k = \text{mij}.[AA_{k+1}]$ — — — 2p

20p