'Assignment-01'

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Ans. to the que. no-01

We have to subtract 132 from 547 using 2's complement in 11 bits. So,

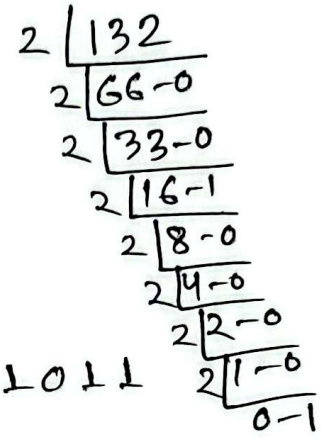
$132 = 10000100$

$+132 = 0\,10000100$

$+132$ in 11 bits $= 000\,10000\,100$

-132 in 1s complement $= 111\,01111011$

-132 in 2s complement $= 111\,01111100$

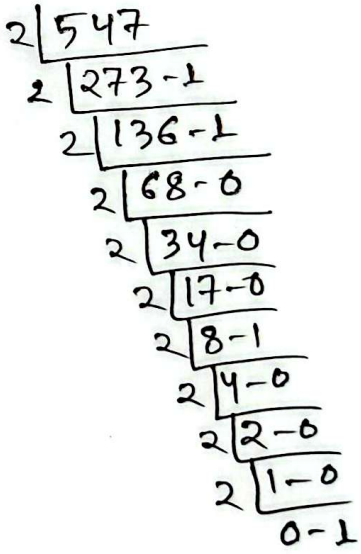


and,

$547 = 1000\,1000\,11$

$+547 = 0\,1000\,1000\,11$

$+547$ in 11 bits $= 0\,1000\,1000\,11$



Now,

$(547) - (132)$

$= (+547) + (-132)$

$$\begin{array}{r} 0\,1000\,1000\,11 \\ (+)\ 1\,1101\,1111\,00 \\ \hline 1\,0011\,0011\,11 \end{array}$$

if we ignore the carry, we get $00\,1100\,1111$. This number is positive which we expected. So,

We can see that there is no overflow. Since we added two different signed numbers we did not get any overflow.

finally, if we subtract 132 from 547 in 11 bits using 2s complement the answer is 00110011111, and there is no overflow. (Ans.)

Ans. to the que no-4

We have to Divide $(444)_7$ by $(25)_7$. So,

$$
\begin{array}{r|l}
25 & 444 \\
 & 25 \\
\hline
 & 164 \\
 & 164 \\
\hline
 & 0
\end{array}
\quad (15
$$

$$
\begin{array}{r} 25 \\ \times 1 \\ \hline 25 \end{array}
\qquad
\begin{array}{r} 3 \\ 25 \\ \times 5 \\ \hline 164 \end{array}
$$

$$
\begin{array}{r|l}
7 & 25 \\
 & 21 \\
\hline
 & 4
\end{array}
\quad (3
\qquad
\begin{array}{r|l}
7 & 13 \\
 & 7 \\
\hline
 & 6
\end{array}
\quad (1
$$

So, $(444)_7 \div (25)_7$ is $(15)_7$ and the remainder is $(0)_7$. (Ans.)

Ans. to the que. no-5

Given, Each RAM costs $(1C2)_{16}$ dollars. So,

$$(1C2)_{16} = 2\times16^0 + 12\times16^1 + 1\times16^2$$
$$= (450)_{10}$$

$\therefore$ two RAM costs $= (450)_{10} \times (2)_{10}$
$= (900)_{10}$ dollars

Graphic Card costs $= (100101110000)_2$ dollars. So,

$$(100101110000)_2 = 0\times2^0+0\times2^1+0\times2^2+0\times2^3+1\times2^4+1\times2^5+0\times2^6+1\times2^7+0\times2^8 + 0\times2^9 \times 1\times2^{10}$$

$= (1200)_{10}$ dollars

$\therefore$ total costs $= (1200)_{10} + (900)_{10}$
$= (2100)_{10}$ dollars

The money given by friend is $(4064)_8$ dollars. So,

$$(4064)_8 = 4\times8^0+6\times8^1+0\times8^2+4\times8^3$$
$= (2100)_{10}$ dollars.

So, remaining money,

$= (2100)_{10} - (2100)_{10}$

$= (0)_{10}$ dollars

∴ I will have 0 dollars remaing.

(Ans.)