Assignment 01 —— 24141020 —— Mohammed Sabbir Ahmed

1)

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

unsigned 547 = 1000100011

\+ 547 = 0100010011

+547 in 11 bits = 01000100011

~~10111011100~~

no 2's complement as pos.

unsigned 132 = 10000100

+132 = 00010000100

+132 in 11 bits = 00010000100

11101111011

\+ 1

11101111100

-132 in 11 bits using 2's comp = 11101111100

now,

547

+(-132)

01000100011

11101111100

10011001111

∴ no overflow as opposite signs.

(Ans)

41

Divide $(444)_7$ by $(25)_7$

$$25\overline{)444}\,(15$$
$$\underline{25}$$
$$194$$
$$\underline{164}$$
$$30$$

$$25\overline{)444}\,(15$$
$$\underline{25}$$
$$169$$
$$\underline{164}$$
$$5$$

verification

$$\begin{array}{r} 25 \\ \times\ 15 \\ \hline 164 \\ 25\times \\ \hline 444 \end{array}$$

(Ans)

$\therefore$ Quotient = 15
Remainder = 0

$r \to 0-6$

$25\times0 = 0$
$25\times1 = 25$
$25\times2 = 53$
$25\times3 = 111$
$25\times4 = 136$
$25\times5 = 164$
$25\times6 = 222$

$7)10(1$ $\frac{7}{3}$

$7)15(2$ $\frac{14}{1}$

$7)8(1$ $\frac{7}{1}$

$7)20(2$ $\frac{14}{6}$

$7)10(1$ $\frac{7}{3}$

$7)25(3$ $\frac{21}{4}$

$7)13(1$ $\frac{7}{6}$

$7)11(1$ $\frac{7}{4}$

$$\begin{array}{r} 25 \\ \times\ 2 \\ \hline 53 \end{array}$$

$$\begin{array}{r} 25 \\ \times\ 3 \\ \hline 111 \end{array}$$

$$\begin{array}{r} 25 \\ \times\ 4 \\ \hline 136 \end{array}$$

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

$$\begin{array}{r} 25 \\ \times\ 6 \\ \hline 222 \end{array}$$

$7)30(4$ $\frac{28}{2}$

$7)16(2$ $\frac{14}{2}$

5

A-10
B-11
C-12
D-13
E-19
F-15

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

$= (450)_{10}$

∴ Two 8GB DDR4 Ram price = 450×2

$= (900)_{10}$ dollars

$(1001011000)_2$

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

$= (1200)_{10}$ dollars

$(4064)_8$

$= (4\times8^3 + 0\times8^2 + 6\times8^1 + 4\times8^0)_{10}$

$= (2100)_{10}$ dollars

Total component price $= (900+1200)_{10}$ dollars

$= 2100$ dollars

∴ Remaining money $= (2100 - 2100) = 0$

∴ I will have no money left after buying those components.