



Ahsanullah University of Science & Technology
Department of Computer Science & Engineering

Course No : CSE2214

Course Title : Assembly Language Programming Sessional

Assignment No : 02

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Section : B

Question No : 01

Question : Suppose that a byte contains the ASCII code of an uppercase letter. What hex number should be added to it to convert it to lowercase.

Answer :

For converting ASCII code of an uppercase letter to lowercase letter 32_{10} should be added. Now converting 32_{10} in hexadecimal value we get,

$$\begin{array}{r|l} 16 & 32 \\ \hline 16 & 2 - 0 \\ \hline & 0 - 2 \end{array} \quad \uparrow$$

The hexadecimal value of $(32)_{10}$ is $(20)_{16}$ should be added to ASCII code of uppercase letter to convert it to lowercase.

Question No : 02

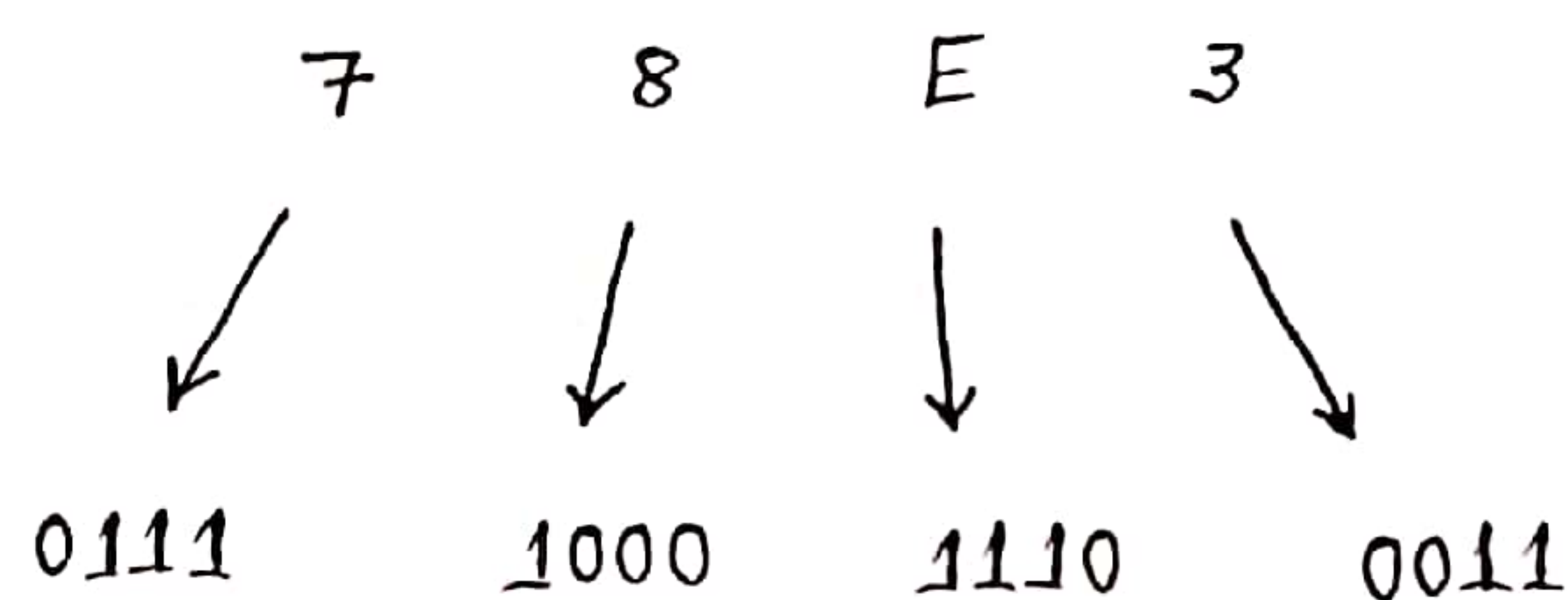
Question : For each of the following 16-bit signed numbers, tell whether it is positive or negative.

2.1. 78E3h

2.2. 9AC4h

Answer :

2.1.

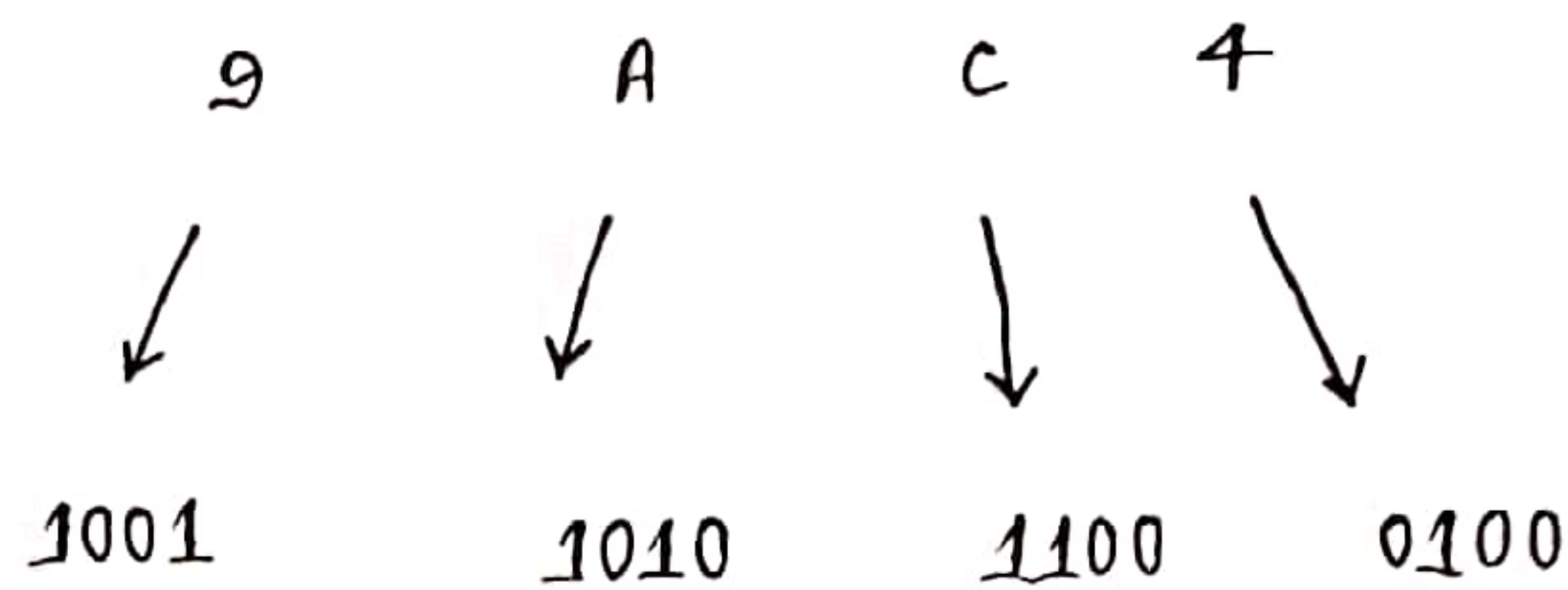


$$\therefore (78E3)_h = (0111\ 1000\ 1110\ 0011)_2$$

We know that, if the 1st bit is 0 then the number is positive and if the 1st bit is 1 then the number is negative.

As the sign bit is 0, $(78E3)_h$ is a positive number.

2.2.



$$\therefore (9AC4)_h = (1001 \ 1010 \ 1100 \ 0100)_2$$

As the sign bit is 1, $(9AC4)_h$ is a negative number.

Question No : 03

Question : Give the unsigned and signed decimal interpretations of each of the following 16 bit or 8 bit numbers.

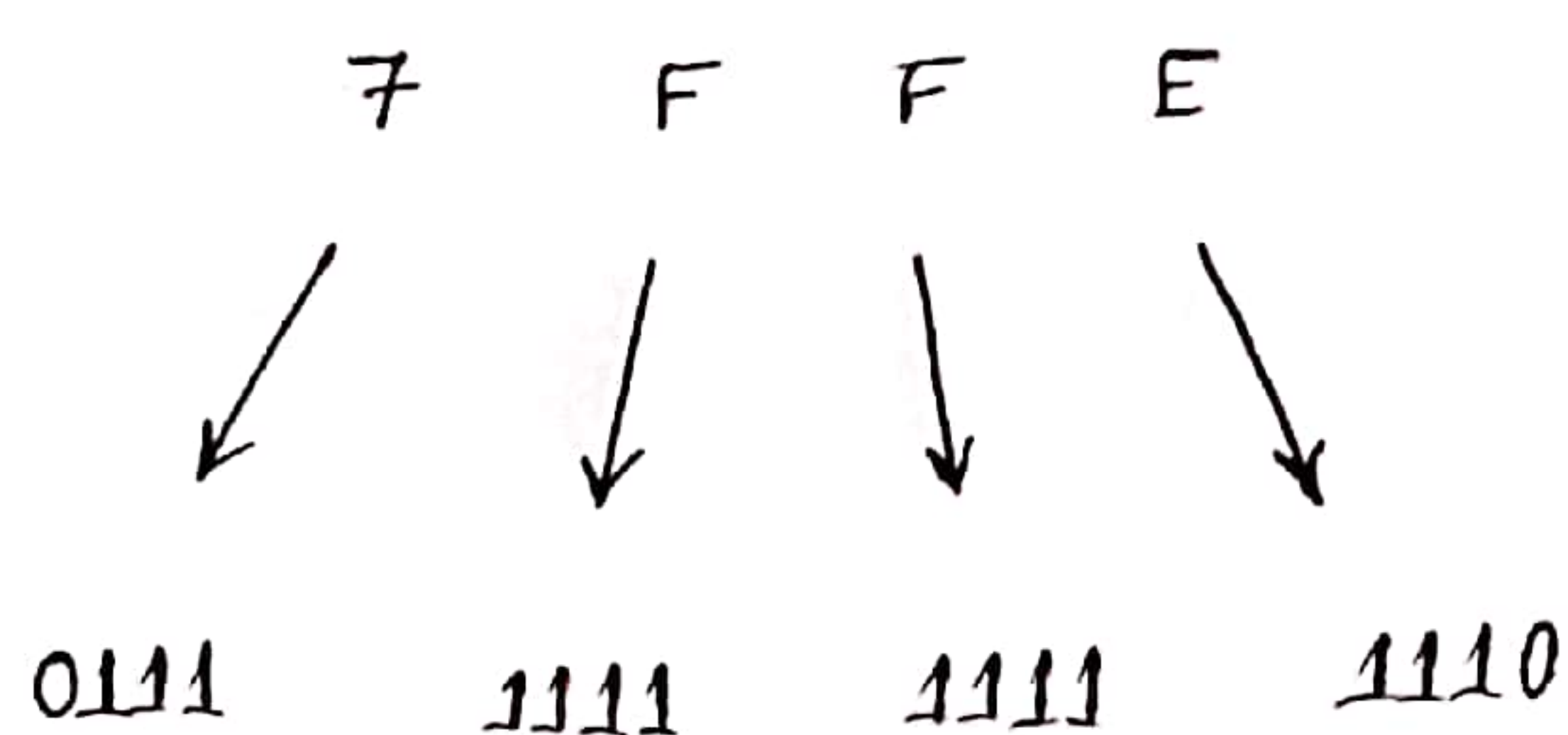
3.1. $7FFE_h$

3.2. $7F_h$

Answer :

3.1 Unsigned : $(7FFE)_h = 7 \times (16)^3 + F \times (16)^2 + F \times (16)^1 + E \times (16)^0$
 $= 7 \times 16^3 + 15 \times 16^2 + 15 \times 16 + 14 \times 1$
 $= (32766)_d$

Signed :



As the sign bit is 0, so the number is positive.

So, the decimal number is $(32766)_d$

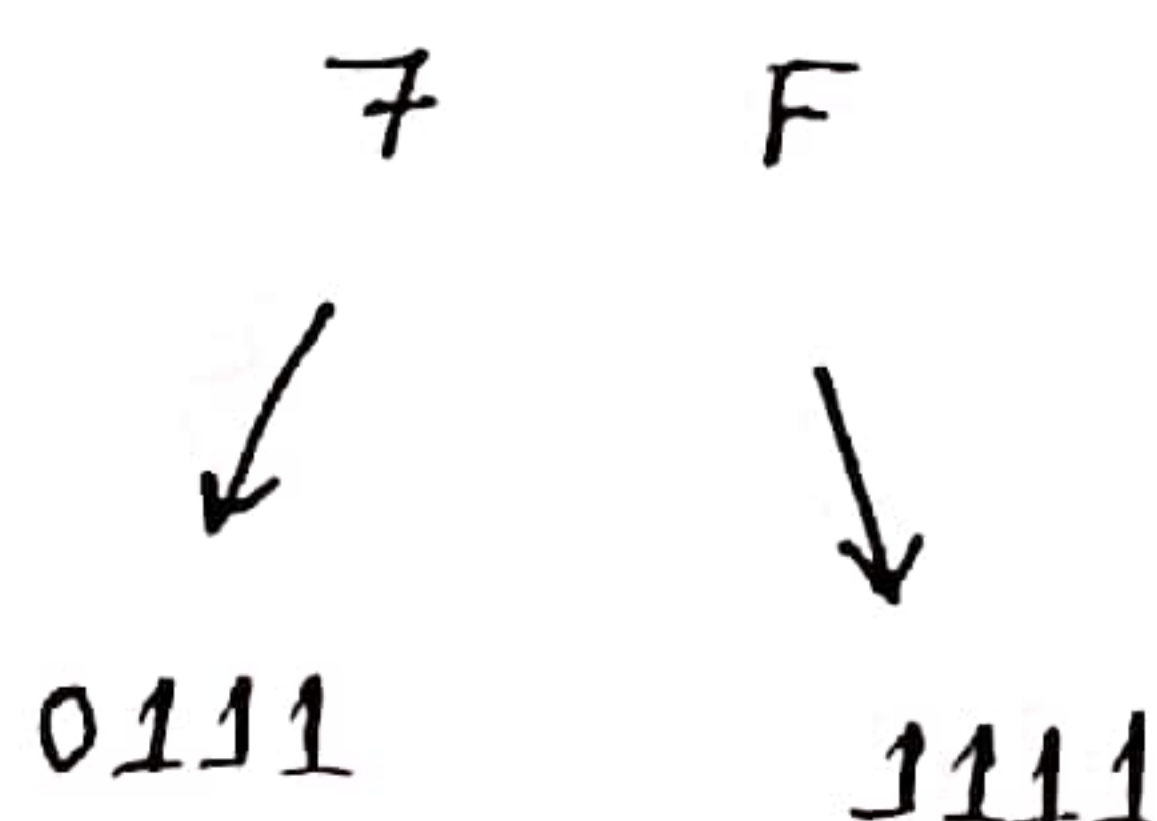
$$(7FFE)_h = (0111\ 1111\ 1111\ 1110)_b$$

3.2 $(7F)_h$

Unsigned :

$$(7F)_h = 7 \times (16)^1 + F \times (16)^0$$
$$= 7 \times 16 + 15 \times 1 = (127)_d$$

Signed :



As the sign bit is 0, so the number is positive.

So, the decimal number is $(127)_d$

$$(7F)_h = (0111\ 1111)_b$$