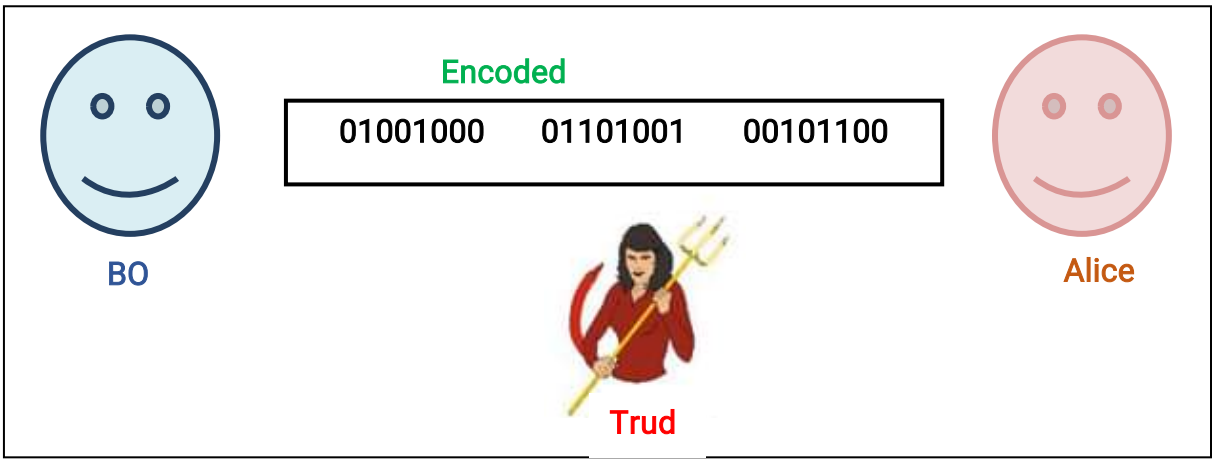
Maham Sweetie
Cs101 Assignment no.1

QuestionsNo. 01 **Marks (12)**

Alice and Bob are playing a game by encoding their messages in an 8-bit binary. Trudy wants to understand or modify their messages. You have to help Trudy to convert encoded messages into a readable format by performing the following operations.



- Note: Perform all the required steps in detail for each operation.

(a) Convert the above 8-digit binary numbers into decimals.

Solution:

01001000_2 =

$(0\times2^7) + (1\times2^6) + (0\times2^5) + (0\times2^4) + (1\times2^3) + (0\times2^2) + (0\times2^1) + (0\times2^0)$

=0+64+0+0+8+0+0+0

$01001000_2 = 72_{10}$

01101001_2=

Edit with WPS Office

$(0\times2^7) + (1\times2^6) + (1\times2^5) + (0\times2^4) + (1\times2^3) + (0\times2^2) + (0\times2^1) + (1\times2^0)$

$= 0+64+32+0+8+0+0+1$

$01101001_2 = 105_{10}$

$00101100_2 =$

$(0\times2^7) + (0\times2^6) + (1\times2^5) + (0\times2^4) + (1\times2^3) + (1\times2^2) + (0\times2^1) + (0\times2^0)$

$=0+0+32+0+8+4+0$

$00101100_2 = 44_{10}$

(B) Convert the 8-digit binary into hexadecimal. (3 marks)

Solution:

Convert binary value to Hexa Decimal Value

Split the binary number from left to right each group 4 bits

8421

0100 1000

4 8

$01001000_2 = 48_{16}$

Convert binary value to Hexa Decimal Value

Split the binary number from left to right each group 4 bits

8421

0110 1001

6 9

$01101001_2 = 69_{16}$

Convert binary value to Hexa Decimal Value

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Split the binary number from left to right each group 4 bits

8421

0010 1100

2 C

$00101100_2 = 2C_{16}$

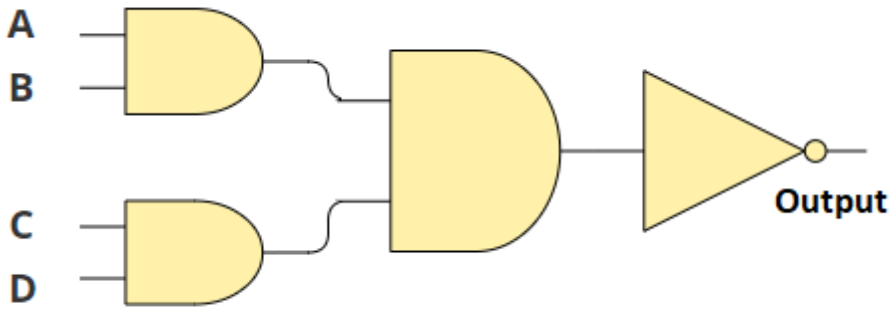
(C) Decode the 8-digit binary in textual form. (Hint: using the ASCII table). (3 marks)

	01001000	01101001	00101100
ACSII Codes	72	105	44
	H	I	,

Textual Form is: **Hi,**

Questions No 02 Marks (04)

The diagram below shows a circuit with four gates and four inputs (A, B, C and D).



If the final output is 0, what are the possible states of inputs A, B, C and D?

A	1
B	1
C	1
D	1

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Questions No. 03 Marks (04)

The following table lists the extensions of some file formats used by the website of "Virtual University of Pakistan". Match each extension to an example of data that it can store:

Extension	Example	Answer
.mp3	The logo of the Virtual University of Pakistan	.gif
.zip	The photo of the Rector on the faculty page.	.jpeg
.gif	The audio tracks of programming talk-throughs.	.mp3
.jpeg	A compressed folder of admission documents.	.zip

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