**CS302 Digital Logic Design Assignment 1 Solution & Discussion Spring 2020**

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**Total marks =**20**Dead line:**01-06-2020

**Question no.1:**Perform decimal to binary conversion on given decimal number using Sum-of- Verify the answer using repeated division method.

weights method.

Decimal Number=1050

**Solution**:

Sum of weight method Decimal to Binary

|  |  |  |  |
| --- | --- | --- | --- |
| **Sum of Term** | **Highest Weight** | **Binary Number** | **Sum of Term – Highest Weight** |
| 1050 | 1024 | 10000000000 | 26 |
| 26 | 16 | 10000100000 | 10 |
| 10 | 8 | 10000011000 | 2 |
| 2 | 2 | 10000011010 | 0 |

## By Sum of Weight Method (1050)10 = (10000011010)2

Now Verification by repeated division method is

**Question no.2**: Perform the following arithmetic operations. For conversion you can use indirect method of conversion only.

(E2BC3F)16 − (10110101000000011110001)2 + (537476217)8 = ( \_\_\_)16

**Solution:**

(E2BC3F)16 − (10110101000000011110001)2 + (537476217)8 = ( )16

i. (E-2-B-C-3-F)16

ii. (101-1010- 1000- 0000-1111- 0001)2 = (5-A-8-0-F-1)16

iii. (537476217)8 = (101-011-111-100-111-110-010-001-111)2

Converting 3 bit to 4 bit

(0101-0111-1110-0111-1100-1000-1111)2

Converting 4 bit to Hexadecimal (5-7-E-7-C-8-F)16

So now Our Equation is in one Number System (E2BC3F)16 –(5A80F1)16+(57E7C8F)16 **=(606B7DD)16**



**Question no.3:**Perform BCD addition between these two numbers. Kindly perform all the steps.

1. 46
2. 37

**Solution:**

BCD is a representation of single digit in 4 bits and for decimal its 0 to 9 only So adding two Numbers by converting them in BCD we have:



As carry is generated so

1 is carry in 10100,

So now add this 1 carry on 0111



## So adding One carry in Binary Our Answer will be (1000 0100)bcd

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