#### **Number Representation**

NOTE: Use of internet is not permitted, calculators are permitted and your answers must include worked solutions. If you require extra sheet(s) please write your name and student number at the top of each additional sheet.

#### Part A

#### **Objective**

Convert decimal numbers to binary showing in detail the conversion process

1. Convert the number of days in a leap year 366 <sub>10</sub> to Base <sub>2</sub>					
Xn	number count	remainder	total	Binary	total
2*8	256	110	256	1 0000 0000	1 0000 0000
2*7	128	110	256	0 1000 0000	1 0000 0000
2*6	64	46	320	0 0100 0000	1 0100 0000
2*5	32	14	352	0 0010 0000	1 0110 0000
2*4	16	14	352	0 0001 0000	1 0110 0000
2*3	8	6	360	0 0000 1000	10110 1000
2*2	4	2	364	0 0000 0100	1 0110 1100
2*1	2	0	366	0 0000 0010	1 0110 1110
2*0	0	0	366	0 0000 0001	1 0110 1110

2.	Convert the number of	i available seats	in the new	Páirc Uí C	chaoimh 4	5,000₁₀ to
	Base <sub>2</sub>					

### **Number Representation**

# Part B

# Objective

Convert numbers base<sub>n</sub> to hexadecimal showing in detail the conversion process

1.	Convert the number 181336782 <sub>10</sub> to Base <sub>16</sub>
2.	Convert the number C0FF.EE <sub>16</sub> to Base <sub>10</sub> directly

# **Number Representation**

# Part C

# Objective

Convert numbers  $base_n$  to  $base_n$  showing in detail the conversion process

1. What is the Base <sub>16</sub> value of 8 bit 2's complement number 1001 0101 <sub>2</sub>	
, <u> </u>	
2. Subtract 13 <sub>10</sub> from 42 <sub>10</sub> using 8 bit 2's complement and convert to Base <sub>8</sub>	

# **Number Representation**

# Part D

# Objective

Convert numbers base<sub>n</sub> to hexadecimal showing in detail the conversion process

1. Add -32 <sub>10</sub> to 61 <sub>10</sub> using 8 bit 2's complement
2. Add -4 <sub>10</sub> to 46 <sub>10</sub> using 8 bit 2's complement
2. Add Till to Toll doing o Sit 2 o complement

# **Number Representation**

Hand up this practical report at the end of session and ensure it has been checked

Student Name		Student Number	
Date		Checked	
Group	A/B		