1. **write all 14 data types discussed in class in sequence.**

|  |  |  |
| --- | --- | --- |
| Data Type | Memory | Range |
| Byte | 1 byte | 0 - 255 |
| uShort | 2 bytes | 0 to 65,535 |
| uInt | 4 bytes | 0 to 4,294,967,295 |
| uLong | 8 bytes | 0 to 18,446,744,073,709,551,615 |
| sByte | 1 byte | -128 to 127 |
| Short | 2 bytes | -32,768 to 32,767 |
| Int | 4 bytes | -2,147,483,648 to 2,147,483,647 |
| Long | 8 bytes | -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 |
| Float | 4 bytes | ±1.5 x 10−45 to ±3.4 x 1038 |
| Double | 8 bytes | ±5.0 × 10−324 to ±1.7 × 10308 |
| Decimal | 16 bytes | ±1.0 x 10-28 to ±7.9228 x 1028 |
| Bool | True (or) False |  |
| Char | 2 bytes | U+0000 to U+FFFF |
| String | Depending on the size of string |  |

1. **write list of 4 number systems and their digits range.**

|  |  |
| --- | --- |
| Number System | Range |
| Binary Numbers | 0, 1 |
| Octal Numbers | 0, 1, 2, 3, 4, 5, 6, 7 |
| Decimal Numbers | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 |
| Hexa Decimal Numbers | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F |

1. **convert decimal : 55, 24, 18 to binary.**

**EX:**

2 | 18

2 | 9 – 0

2 | 4 – 1

2 | 2 - 0

| 1 - 0

|  |  |
| --- | --- |
| **Decimal** | **Binary** |
| 55 | 110111 |
| 24 | 11000 |
| 18 | 10010 |

1. **convert binary : 10110, 1011, 101110 to decimal.**

1 0 1 1 0

2^4 2^3 2^2 2^1 2^0

16 0 4 2 0 = **22**

|  |  |
| --- | --- |
| **Binary** | **Decimal** |
| 10110 | 22 |
| 1011 | 11 |
| 101110 | 46 |