Data Types

1. Create a Union Data with members character C, short S, Integer I and long L. Show how can we store data in this union.

2. Provide a C/C++ declaration of a Structure INVENTORY containing he following data:
   -character array partname,
   - floating point Price,
   - integer Stock,
   - integer reorder
   - structure Dateofpurchase(day,month,year)

3. Write the datatype which is best suited to represent the following:
   i) absence of parameters
   ii) Logical values
   iii) scientific values with high precision
   iv) value 35.67
   v) alphanumeric values
   vi) values in the range -2000 to + 3500
   i) Positive values less than 1000000

4. Give the C/C++ expression for following algebraic expression

$$i) \quad \frac{(a+b)^4 c^2 - d\ X\ e}{m+n}$$

$$ii) \quad (aXb) + \frac{(e-f)^4}{(c\ X\ d)}$$

5. What is the value of 8-bit integer after all the below statements are executed:

```
int x=1;
x =x>>7;
x=x<<7;
```

Number Systems

1. Represent the following numbers as 16 bit signed magnitude binary integers:
   i) 567
   ii) -387
   iii) 1043
   iv) -428

2. Perform the following conversions:
   i) $(2565)_{10} = (?)_2 = (?)_8$
   ii) $(A627)_{16} = (?)_2 = (?)_{10}$