**DATA PATTERNS**

1. Reverse the words in the sentence “have a nice day”. It should be changed to “day nice a have”.
2. Write a program to swap integers.
3. Merge two binary trees into one.
4. To write a function which given two dates, checks whether the dates are exactly 1 month apart (e.g June 06 2011 & July 06 2011, Dec 15 2010 & Jan 15 2011), less than 1 month apart (e.g Mar 01 2011 & Mar 25 2011)
5. Given a set of N lines of English language, each comprises only of a-z and A-Z. For each line, find the alphabets which have highest frequency of occurance and print them (with capital letters first then small letters in increasing order.
6. Given a number X, find the smallest prime number which is grater than X.
7. 3 divides 111, 13 divides 111111 etc.. find a number having all one's which is shortest divisible by a given number which has 3 as its last digit.
8. Write a C function for unsigned power(double x, unsigned int n) using minimum number of multiplications. Count the number of multiplications used.
9. Given an integer array of which both first half and second half are sorted. Write a function to merge the two parts to create one single sorted array in place [do not use any extra space]. Eg: If input array is { 2, 3, 8, -1, 7, 10 } then Output should be -1, 2, 3, 7, 8, 10.
10. Add 2 numbers without using arithmetic operators.
11. Detect if two integers have opposite signs (using bitwise operator)
12. Write a program to check an integer is a power of 2 (using bitwise operator)
13. Predict the output

main()

{

char\*p ;

printf(“%d %d”,sizeof(\*p),sizeof(p));

}

1. Predict the output

#include<stdio.h>

int main()

{

printf(“%d>>%d %d>>%d\n”,4>>1,8>>1);

return 0;

}

1. Predict the output

int main()

{

int x=19;

printf(“x<<1=%d\n”,x<<1);

printf(“x>>1=%d\n”,x>>1);

return 0;

}