MIDTERM EXAMINATION
Spring 2010

Question No: 17 (Marks: 2)
What is the difference between **switch** statement and **if** statement.
Answer:
1.if statement is used when we have to check two conditions while switch is a multi conditional control statement

2. SWITCH statement can be executed with all cases if the "break" statement is not used whereas IF statement has to be true to be executed further.

Question No: 18 (Marks: 2)
Why we close a file after use?
Answer:
To save our data stored on file. Also this process makes our program fast and reliable.
OR
You have finished with it. This is particularly important if you are writing to the file. The operating system does not switch on the disk drive to write just a single character to the disk, rather it waits until it has a load to write and then writes the lots in one go.
http://www2.sis.pitt.edu/~ir/KS/Data/RMiles/c12.html

Question No: 19 (Marks: 2)
A two-dimensional array has 3 rows and 4 columns. Write down the syntax to initialize first element of all three rows of two-dimensional array with value 2.
Answer:
```
int matrix[0][0]=2
int matrix[1][0]=2
int matrix[2][0]=2
```

Question No: 20 (Marks: 3)
Identify the errors in the following code segment and give the reason of errors.
```
main(){
int x = 10
const int *ptr = &x ;
*ptr = 5 ;
}
```

Answer:
Int x=10….No ending semicolon.
*ptr=5... Declaring a pointer to constant integer. You cannot use this pointer to change the value being pointed to.

Question No: 21 (Marks: 3)
Can you use an assignment operator to assign the value of one C-string to another?

Answer:
Yes we can assign the one value of C-string to another using assignment operator. We can assign the value of one string to another string through this method.
A[0]=B[0]
A[1]=B[2]
A[3]=B[3]
And we can assign the whole string to another C string using Assignment operator by using loops.

Question No: 22 (Marks: 5)
Why binary search algorithm is more efficient than the linear search algorithm?
Answer: (page118)
Binary search algorithm is more efficient than liner algorithm because the arrays are sorted in asending or desending order and we use “devide and conqrer” technique. In binary search each iteration reduces the search by the factor of two but in the linear we have the same number of searches as we have the number of elements.e.g,if we have array of 1000 elements the linear search will take 1000 iterations however binary search will take max 10.

Question No: 23 (Marks: 5)
Write down the output of the code given below :
Hint:
Size of char is 1 byte
Size of int is 2 byte
Size of float is 4 byte

```
#include <iostream.h>

union mytypes_t {
  char c;
  int i;
  float f;
  } mytypes;

int main(){

    mytypes.c = 'H';
    mytypes.i = 15;

    cout << sizeof(mytypes)<<endl;
```

```
    mytypes.i = 15;
    mytypes.c = 'H';

    cout << sizeof(mytypes)<<endl;

    system("PAUSE");
    return 0;
}
```

Question No: 16 (Marks: 1) - Please choose one

In Program commenting the code liberally is

Answer: (page 06)

It need to be self-contained and understandable. Comments should be placed liberally. The comments should explain the logic, not the mechanics. Try to avoid fancy programming.

Question No: 17 (Marks: 1)

Which header file must be included while handling files?

Answer: (page 199)

Include <fstream.h>

Question No: 18 (Marks: 1)

What is meant by C++ statement: **const int *ptr = &x;**

Answer:

ptr is a pointer to data of type const int type. And to assign the address of x to pointer ptr

Question No: 19 (Marks: 2)

What is a truth Table?

Answer: (page 562)

We know the concept of truth table. The truth tables are very important. These are still a tool available for analyzing logical expressions. We will read logic design in future, which is actually to do with chips and gate. We find it difficult to evaluate a complicated logical expression. Sometimes the logic becomes extremely complicated so that even writing it as a simple syntax statement in any language. These are used to make a big circuit with the use of minimum chips. These minimization techniques deal with Boolean algebra i.e. logic.

Question No: 20 (Marks: 3)

(1) An array day is declared as: **int day[] = {1, 2, 3, 4, 5, 6, 7};**

How many elements does array 'day' has?

Answer:

7 elements

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(2) If the declaration is changed as: **int day[7] = {1, 2, 3, 4, 5, 6, 7};**
How many elements does array 'day' has?
Answer:
7 elements

Question No: 21 (Marks: 5)

What are similarities and differences between Structures and Unions?
Answer: (page 242)
In structures, we have different data members and all of these have their own memory space. In union, the memory location is same while the first data member is one name for that memory location. However, the 2nd data member is another name for the same location and so on. Consider the above union (i.e. intOrChar) that contains an integer and a character as data members. What will be the size of this union? The answer is the very simple. The union will be allocated the memory equal to that of the largest size data member. If the int occupies four bytes on our system and char occupies one byte, the union *intOrChar* will occupy four bytes

Question: 1-difference in pointer and veriable?
Question: 2-differenc in tellg() and tellp()
Answer: 215
tellg () gives us the current get position of the file pointer, tellp () function is used to determine the next position to write a character

Question: 3-why we close a file after use? repeat

Question: call by value and call by reference?
Answer: 84-266
There is another way to call a function in which the function can change the values of variables that are passed as arguments, of calling program. Such function call is known as call by reference.
Call by value means that when we call a function and pass some parameter to it, the calling function gets the copy of the value and the original value remains unchanged.

Question: 1. give one use of pointer
Answer: 150
The one use of pointer is to interchange two values that means it is used to swapped the values.

Question: 2. **bubble sort**
Answer: 149
Bubble sorting is a technique, in which we put value of one variable in a temporary location to preserve it and assign the value of second variable to the first. Then the temporary value is assigned to the second variable

3. what happened when we increment pointer
The effect of the increment operator ++ on a pointer object is to have the new address to which it points be the starting location of the object immediately after the object to which it previously pointed.
http://www.adiwebs.com/what-happens-if-a-pointer-object-is-incremented/

Question: 4. basic steps for file handling

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Answer: 199
The basic steps of file handling are:
Open the file
Read and write
Close the file

Question: 5. which function is used in read/write while handling files
Answer: 199
ifstream inFile; // object for reading from a file
ofstream outFile; // object for writing to a file

Question: What operator do you use to assign a pointer the address of another variable or constant? (2marks)

Question: Identify each of the following function as string conversion function or string manipulating function; double atof (const char *nptr)
Answer: page 191
Converts the string **nPtr** to **double**.

char *strcpy (char *s1,const char *s2)
Answer: page 192
Copies string **s2** into character array **s1**. The value of s1 is returned.

Question: What happens when we increment a pointer? (3 marks)
repeat
Question: Can you use an assignment operator to assign the value of one C-string to another?(3 marks)
Repeat

Question: What is the purpose and syntax of the const keyword? (5 marks)
Answer:
Through "const", if we have to change the size of the array, we only have to change the value of arraySize where it is declared.
Syntax of const is
const variable-name [= value];

Question: What will be the output of the following;

```
#include <iostream.h>
using name space std:
union Num
{
        int Value I;
        float Value F;
        double ValueD;
        char Value C;
};
Void main ()
```

```
{
// Optional unionkeyword
// Value I = 100
NumTestValue = {100};
cout << \ nInteger = "<< TestVal.ValueI<<endl;
TestVal.Value F = 2.123;
cout << "Float=" << TestVal.ValueF<<endl;
cout<<"Uninitialzed double = "<<TestVal.Val D<< endl;
cout<<"Some rubbish???"<<endl;
TestVal.Value C = 'U';
cout<<"character = '<< TestVal.Value<<endl;
}
```

Question: Write down the general syntax of switch statement. 2 Marks

Answer: repeat

Question: Why we close a file after use? 2 Marks

Answer: repeat

Question: When a pointer is incremented then how many bytes will it move to change its address? 2 Marks

Answer: page 160

If an integer occupies four bytes in the memory, then the yptr++; will increment its value by four. when we increment the yptr, it points to the next integer in the memory

Q4: **If there are 2n element in an array then what would be the number of iterations required to search a number using binary and linear search?** 3 Marks

Answer: page 160

If an array has elements 2n, then the maximum number of iterations required by binary search will be n

Q5**: write down the functions definition if we want to pass the argument to a function by reference without changing the values stored at address.** **5 Marks**

Q6: **What will be the output of the following code segment** 5 Marks

```
, int x= 6;
int y;
x = x << 1;
y = x >> 1;
cout << "x = " << x << "\n";
cout << "y = " << y;
```

Answer:

x=12

y=6

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