

Guru Gobind Singh Public School

Sector : V/B, Bokaro Steel City
Assignment – Pre Board (2019)

Class : XII
Subject : Computer Science

1.

- a) Differentiate between the post-increment and pre-increment operators. Also, give a suitable c++ code to illustrate both.
- b) Which c++ header file(s) are essentially required to be included to run/execute the following c++ code.

```
void main()
{
    int last=25;
    for(int c=9;c<=last;c++)
        cout<<c<<":"<<sqrt(c)<<endl;
}
```

- c) Rewrite the following program after removing the syntactical errors(if any). Underline each correction.

```
#include{iostream.h}
CLASS User
{
    Long userid; char Gender;
    public:
        void Authorize
        { cin>>userid>>gender; }
        void show()
        { cout<<userid<<":"<<gender<<endl; }
};
```

- d) Find the output of the following program :

```
#include<iostream.h>
#include<ctype.h>
void decode(char Text[])
{
    for(int c=0;Text[c];c++)
    {
        char ch=(Text[c]>='a' && Text[c]<='Z')?Text[c]-32:Text[c];
        if (ch<='M' && ch>='H')
            Text[c]='#';
        else
            if ( ch=='A' || ch=='E' || ch=='U')
                Text[c]=tolower(ch);
            else
                if ( ch>='0' && ch<='9')
                    Text[c]='$';
                else
                    Text[c]=toupper(ch);
    }
}
void main()
{
    char sms[]="US2InDIA";
    decode(sms);
    cout<<sms<<endl;
```

}

- f) Which option will not be the expected output from the given program. What will be the minimum and maximum value assigned to the variable Sequence :

```
void main()
{
    int Sequence, Select[4]={25,90,30,45};
    randomize();
    for( int c=0;c<4;c++)
    {
        Sequence=random(4-C);
        cout<<select[Sequence]<<"@";
    }
}
```

i) 45@90@30@25@
iii) 30@30@25@25@

ii) 90@25@90@25@
iv) 30@30@90@25@

2. a) Explain all types constructor suitable example.
- b) Define a class in c++ with following description :
- > A data member Icode of type integer
 - > A data member Item of type string
 - > A data member Price of type float
 - > A data member Qty of type integer
 - > A data member Discount of type float
 - > A member function FINDDISC() to find discount as per the following rule :

<u>Qty</u>	<u>Discount</u>
<=50	0
More than 50 and <=100	5
More than 100	10

Public Members

- > A function buy() to allow user to enter values for Icode, item, price, Qty, and call function FindDisc() to calculate the discount.
 - > A function SHOWINFO() to allow user to view the content of all the data members.
- c) Answer the questions(i) to (iv) based on the following :

```
[4]
class Customer
{
    int cust_no;
    char Cust_Name[10];
protected :
    void register();
public:
    Customer();
    void status();
};
class Salesman : private Customer
{
    int Salesman_no;
    char Salesman_Name[10];
protected:
    float salary;
public:
    Salesman();
```

```

        void Enter();
        void show();
};
class SHOP : public Salesman
{
        char Voucher_No[4];
        char Sales_Date[8];
    public:
        SHOP();
        void sales_Entry();
        void show_Details();
};

```

- i) Write the names of data members which are accessible from objects belonging to class Customer.
- ii) Write the names of all the member functions which are accessible from objects belonging to class Salesmen.
- iii) Write the names of all the members which are accessible from member function of class SHOP.
- iv) How many bytes will be required by an object belonging to class SHOP.
3. a) Write a function in c++ which accepts an integer array and its size as arguments/parameter and exchange the values of all the negative elements with their positive equivalents.
 Example :
 If an Array of eight elements has initial content as
 2,4,-1,-5,7,8,-4,2
 The function will rearrange the array as
 2,4,1,5,7,8,4,2
- B. Write a function TRANSFORM(int N, int M) in C++ to swap the elements of first and the last row.
- c. An array P[1...15][1...8] is stored in the memory along the column with each of the element occupying 4 bytes, find out the the base address and the address of an element Arr[3][2], if the location Arr[5][7] is stored at the address 2500.
- d. Write a user-defined function in c++ to perform a delete operation in a dynamically allocated queue.
- e. Write a user-defined function in c++ to perform an insert operation in a dynamically allocated queue.
- f. Evaluate the following postfix notation of expression :
 (Show status of stack after each operation)
 i) 100 , 40, 8 , + , 20, 10, - , + , *
 ii) true , False, NOT, OR, False, True , OR, AND
4. a. Write a function to count the number of words "The" in a text file "STORY.TXT". [2]
 b. Write a function in c++ to read and display the details of all the members whose membership type is 'L' or 'M' from a binary file "CLUB.DAT" . Assume the binary file "CLUB.DAT" contains objects of class CLUB, which is defined as follows
- ```

class club
{
 int mno; // member No
 char mname[20]; //Member name
 char type; //Member Type L life member M
 //monthly member G guest

 public:
 void register(); // function to enter contents
 void display(); // function to display all data members
 char whattype()
 { return type ; };
};

```

5. a. What do you understand by degree and cardinality of table .  
 b. Consider the following tables item and customer. Write SQL commands for the statement (i) to (iv) and give outputs for SQL queries (v) to (viii).

**Table : ACTIVITY**

| ACode | Activity Name  | Participants Num | Prize Money | Schedule Date |
|-------|----------------|------------------|-------------|---------------|
| 1001  | Relay 100 X 4  | 16               | 10000       | 23 Jan,2004   |
| 1002  | High Jump      | 10               | 12000       | 12 Dec, 2003  |
| 1003  | Shot Put       | 12               | 8000        | 14 Feb, 2004  |
| 1004  | Long Jump      | 12               | 9000        | 01 Jan, 2004  |
| 1005  | Discus Through | 10               | 15000       | 19 Jan, 2004  |

**Table : COACH**

| P_Code | Name     | ACode  |
|--------|----------|--------|
| 1      | N ROY    | Delhi  |
| 2      | H SINGH  | Mumbai |
| 3      | R PANDEY | Delhi  |
| 4      | C SHARMA | Delhi  |

- i. To display the name of all activities with their Acode in descending order.  
 ii. To display the sum of PrizeMoney for each of the number of participants groupings (as shown in column ParticipantsNum 10,12,16)  
 iii. To display the coach's name and Acodes in ascending order of Acode from the table coach.  
 iv. To display the contents of the GAMES table whose schedule Date earlier than 01/01/2004 in ascending order of participantsNum.  
 v. SELECT count(DISTINCT Participants num) from Activity.  
 vi. SELECT Max(Schedule Date),Min(Schedule Date) from ACTIVITY;.  
 vii. SELECT SUM(PrizeMoney) from ACTIVITY;  
 viii. SELECT DISTINCT ParticipantNum from COACH.
6. a. State and Verify De Morgans law in Boolean Algebra.  
 b. Draw a logical circuit diagram for the following Boolean expression :  
 I  $A'. (B'+C)$   
 Ii  $(A'B') + (B+C)'$   
 Iii  $A+B'. (A'+C)'$
- c. Convert the following boolean expression into its equivalent Canonical Sum of products Form (SOP) :  
 i)  $(X'+Y+Z'). (X'+Y+Z). (X'+Y'+Z). (X'+Y'+Z')$   
 ii)  $(X+Y+Z'). (X+Y'+Z). (X+Y'+Z'). (X'+Y+Z')$   
 iii)  $(X'YZ')+(X'YZ)+(X'Y'Z)+(X'+Y'+Z')$
7. a. How is telnet service of internet is useful ?  
 b. Expand the following terms :  
 i) MODEM  
 ii) TAP  
 d. What is Ethernet? What is Ethernet card ?  
 e. Explain  
 Switch  
 Router  
 Gateway