# CLASS XII
# COMPUTER SCIENCE REVISION EXAM
# [ HALF SYLLABUS]

**DURATION: 2.30 Hrs.** **MARKS: 70**

1. Write a function in C++, which accepts an integer array and its size as parameters and rearranges the array in reverse. [3]
**Example**:If an array of nine elements initially contains the elements as 4, 2, 5, 1, 6, 7, 8, 12, 10
Then the function should rearrange the array as 10,12, 8, 7, 6, 1, 5, 2,

2. An array Arr[40][10] is store in the memory along the ROW with each element occupying 4 bytes. Find out the base address of the location Arr[3][6] if the location Arr[30][10] is stored at the address 9000. [3]

3. Write a function in C++ to print the product of each column of a two dimensional array

passed as the arguments of the function. [3]

4. Write function in C++ which accepts an integer array and size as arguments and replaces elements having odd values with thrice its value and elements having even values with twice its value. [3]
**Example :** if an array of five elements initially contains elements as 3, 4, 5, 16, 9
The the function should rearrange the content of the array as 9, 8, 75, 32, 27

5. An array Array[20][15] is stored in the memory along the **column** with each element occupying 8 bytes. Find out the base address of the element Array[2][3] if the element Arr[4][5] is stored at the address 1000. [3]

6. Write function in C++ which accepts an integer array and size as arguments and assign values into a 2D array of integers in the following format : [3]
**If the array is 1, 2, 3, 4, 5, 6**
The resultant 2D array is given below
1 2 3 4 5 6
1 2 3 4 5 0
1 2 3 4 0 0
1 2 3 0 0 0
1 2 0 0 0 0
1 0 0 0 0 0
**If the array is 1, 2, 3**
The resultant 2D array is given :
1 2 3
1 2 0

1 0 0

7. Write a function in C++ to print sum of all values which either are divisible by 2 or divisible by 3 present in a 2D array passed as the argument of the function. [2]

8. Distinguish between the private and protected visibility modes of a class. [2]
9. What is called copy constructor? Give an example. [2]
10. Answer the questions (i) and (ii) after going through the following class: [2]

```
class WORK
{int WorkID;
char WorkType;
public:
~WORK( )                    // Function 1
{cout<<"Un-Allocated"<<endl;
}
void status( )              // Function 2
{cout<<WorkID<<";"<<WorkType<<endl;
}
WORK( )                     // Function 3
{WorkID=10;
WorkType='T';
}
WORK(WORK &W)               // Function 4
{WorkID=W.WorkID+12;
WorkType=W.WorkType+1;
}
};
```

(i) Which member function out of function1, function2, function3 and function4 shown in the above example of class WORK is called automatically, when the scope of an object gets over? Is it known as Constructor OR Destructor OR Overloaded Function OR Copy Constructor?

(ii)
```
WORK W;    //Statement 1
WORK Y (W);        //Statement 2
```

Which member function out of Function1, Function2, Function3 and Function4 shown in above definition of class WORK will be called on execution of statement written as Statement 2? What is this function specifically known as out of Destructor or Copy Constructor or Parameterized Constructor?

11. Define a class Stock in C+ + with the following description: [4]

**Private Members**

- ICode of type integer (Item Code)
- Item of type string (Item Name)
- Price of type float(Price of each item)
- Qty of type integer (quantity in stock)
- Discount of type float (Discount percentage on the item)
- A member function FindDisc( ) to calculate discount as per the following rule:
  If Qty<=50 Discount is 0

  If Qty (51 and100) Discount is 5

  If Qty>100 Discount is 10

**Public Members:**

- A constructor to assign all values with 0 and null respectively
- A function Buy( ) to allow user to enter values for ICode, Item, Price, Qty and call function FindDisc( ) to calculate the discount.
- A Function ShowAll( ) to allow userto view the content of all the data members.

12. Answer the questions (i)to (iv) based on the following: [4]

```
class FacetoFace

{char CenterCode[10];

public:

void Input( );

void Output( );

};

class Online
```

```
{char Website[50];
public:
void Sitein( );
void Siteout( );};
class Training : public FacetoFace, private Online
{long Tcode;
float Charge;
int Period;
public:
void Register( );
void Show ( );
};
```

(i) Which type of inheritance is shown in the above example?
(ii) Write names of all member functions accessible from Show( ) function of class Training.
(iii) Write names of all the members accessible through an object of class Training.
(iv) Is the function Output( ) accessible inside the function SiteOut( )? Justify you answer.

.

13. (a) Differentiate between a default and a parameterized constructor in context of class and object. Give suitable example in C++. [2]

14. Answer the questions (i) and (ii) after going through the following class [2]

```
class Computer
{ char C_name[20];
char Config[100];
public:
Computer(Computer &obj);     // function1
~Computer();                 //function 2
};
```

(i) Write the statement(s) which will invoke the function 1.

(ii) Name the specific feature of the class shown by function 2. Also write the time of its invoke.

(c) Define a class **Travel** in C++ with the description given below: [4]

**Private members**:

plancode of type long

place of type characters array

number_of_travellers of type integer

number_of_buses of type integer

**Public members:**

A constructor to assign initial values of plancode as 1001, place as "Kolkata", number_of_travellers as 5 and number_of_buses as 1

A function newplan( ) which allows user to enter plancode , place and number_of_travellers and also assign the number_of_buses as per the following conditions:

| **number_of_travellers** | **number_of_buses** |
|---|---|
| less than 20 | 2 |
| equal to and more than 20 and less than 40 | 3 |
| equal to and more than 40 | 4 |

A function show( ) to display the contents of all the data members on the screen.

(d) Answer the questions (i) to (iv) based on the following code : [4]

```
class Goods
{ int id;
protected :
char name[20];
long qty;
void Incr(int n);
```

```
public :
Goods();
~Goods();
void get(); };
class Food_products : public Goods
{ char exp_dt[10];
protected :
int id;
int qty;
public :
void getd();
void showd(); };
class Cosmetics : private Goods
{ int qty;
char exp_date[10];
protected :
int id;
public :
~Cosmetics();
Cosmetics();
void show();
};
```

(i) How many bytes will be required by an object of class Food_products.

(ii) Name the member functions accessible through the object of class Food_products.

(iii) From the following, Identify the member function(s) that cannot be called directly from the object of class Cosmetics

show(), getd(), get()

(v) If the class cosmetics inherits the properties of food_products class also, then name the type of inheritance.

15.

a) what are DDL and DML Commands? Give one example of each. 2

b) Consider the following tables Stationary and Consumer. Write SQL commands for the statement (i) to (iv) and output for SQL queries (v) to (viii): 6

**Table: Stationary**

| S_ID | StationaryName | Company | Price |
|---|---|---|---|
| DP01 | Dot Pen | ABC | 10 |
| PL02 | Pencil | XYZ | 6 |
| ER05 | Eraser | XYZ | 7 |
| PL01 | Pencil | CAM | 5 |
| GP02 | Gel Pen | ABC | 15 |

**Table: Consumer**

| C_ID | ConsumerName | Address | S_ID |
|---|---|---|---|
| 01 | Good Learner | Delhi | PL01 |
| 06 | Write Well | Mumbai | GP02 |
| 12 | Topper | Delhi | DP01 |
| 15 | Write & Draw | Delhi | PL02 |
| 16 | Motivation | Banglore | PL01 |

(i) To display the details of those consumers whose Address is Delhi.
(ii) To display the details of Stationary whose Price is in the range of 8 to 15. (Both Value included)

(iii) To display the ConsumerName, Address from Table Consumer, and Company and Price from table Stationary, with their corresponding matching S_ID.
(iv) To increase the Price of all stationary by 2.
(v) SELECT DISTINCT Address FROM Consumer;
(vi) SELECT Company, MAX(Price), MIN(Price), COUNT(*) from Stationary GROUP BY Company;
(vii) SELECT Consumer.ConsumerName, Stationary.StationaryName, Stationary.Price FROM Strionary, Consumer WHERE Consumer.S_ID=Stationary.S_ID;
(viii) Select StationaryName, Price*3 From Stationary;

16. **What do you understand by Primary Key & Candidate Keys?** [2]

Consider the following tables GAMES and PLAYER and answer (b) and (c) parts of this question:

**Table: GAMES**

| GCode | GameName | Type | Number Prize | Schedule Money | Date |
|---|---|---|---|---|---|
| 101 | Carom Board | Indoor | 2 | 5000 | 23-Jan-2004 |
| 102 | Badminton | Outdoor | 2 | 12000 | 12-Dec-2003 |
| 103 | Table Tennis | Indoor | 4 | 8000 | 14-Feb-2004 |
| 105 | Chess | Indoor | 2 | 9000 | 01-Jan-2004 |
| 108 | Lawn Tennis | Outdoor | 4 | 25000 | 19-Mar-2004 |

**Table: PLAYER**

| Pcode | Name | Gcode |
|---|---|---|
| 1 | Nabi Ahmad | 101 |
| 2 | Ravi Sahai | 108 |
| 3 | Jatin | 101 |
| 4 | Nazneen | 103 |

**(b) Write SQL commands for the flowing statements:** [ 4]

(i) To display the name of all GAMES with their GCodes
(ii) To display details of those GAMES which are having PrizeMoney more than 7000.
(iii) To display the content of the GAMES table in ascending order of Schedule Date.
(iv) To display sum of PrizeMoney for each Type of GAMES

**(c) Give the output of the following SQL queries:** [2]

(i) SELECT COUNT(DISTINCT Number) FROM GAMES;
(ii) SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES;
(iiI) SELECT Name, GameName FROM GAMES G, PLAYER P WHERE G.Gcode=P.Gcode AND G.PrizeMoney>10000;
(iv) SELECT DISTINCT Gcode FROM PLAYER;

17. Evaluate the following POSTFIX notation. Show status of Stack after every step of evaluation (i.e. after each operator) : 2

`True,False,NOT,AND,False,True,OR,AND`

18. Evaluate the following postfix expression using stack and show the contents of stack after each step : [**2]**

**25,20,+,9,7 , - ,1,2,*,+**

19. Write a function insert an element in linked queue. [2]

20. . Evaluate the following postfix expression using stack and show the contents of stack after each step : [**2]**

**15,10,*,3,7 , + ,4,2,/,+**