This Question Paper consists of **31** questions and **8** printed pages.

Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐ **Code No. 63/OSS/1**

SET **A**

COMPUTER SCIENCE
(330)

Day and Date of Examination _____

Signature of Invigilators 1. _____

2. _____

General Instructions :

1 Candidate must write his/her Roll Number on the first page of the Question Paper.

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3 Making any identification mark in the Answer-Book or writing Roll Number anywhere other than the specified places will lead to disqualification of the candidate.

4 Write your Question Paper Code No. **63/OSS/1, Set-** A on the Answer-Book.

COMPUTER SCIENCE

(330)

Time : **3** Hours]   [Maximum Marks : **60**

Note :   (i)   Answer **all** questions.

(ii)   Marks allotted to each question are given on the right-hand side.

(iii) Use C++ programming language to answer the programming questions.

1   Name the header files to which the following built-in functions belong :   **1**

(i)   getche()

(ii)   isdigit ()

2   For an integer number with assigned value as a=5, write a statement using   **1**
a conditional operator to check and display whether number is "positive" or
"negative".

3   _____ symbol is used to declare a reference variable in C++.   **1**

4   How is Server Virtualization different from Network Virtualization ?   **1**

5   State four advantages of Grid computing.   **1**

6   Write the HTML code to display 2D rule in a web page having width of 2   **1**
pixels and without any shade.

7   Define the following terms :   **2**

(i)   Data Abstraction

(ii)   Encapsulation

8 Write the output of the following program : **2**

```
#include<isotream.h>
#include<ctype.h>
void main()
{   char Str[ ]= "WelCome 2021";
    for (int a=0; Str[a]! = '\0';a++)
    {   if(isalpha(Str[a]))
        {   if(isupper(Str[a]))
                    Str[a]++;
            else
                    Str[a]=Str[a-1];
        }
        else if(isdigit(Str[a]))
            Str[a]'#';
        else
            str[a]='@';
    }
      cout<<Str;         }
```

9 Answer the following questions : **2×2=4**

(a) Give any difference between prefix and postfix operators. Give one example of each.

(b) Differentiate between break statement and exit() function from behaviour point of view. Also, give an example in C++.

10 Write output of the following program. **2**

```
#include<iostream.h>
int X=15, Y=30;
void inter_change (int & x, int y)
{   X = x+y;
    Y = x-y;
    X = x-y;
}
void main()
{   int X=20, Y=40;
    cout<<X<<""<<::Y<<'\n';
    inter_change (X,::Y);
    cout<<::X<<""<<Y;
}
```

11   Define a structure 'Sports' in C++ with the following specifications :   **3**

Members :

S_Code of type integer

S_Name of type character array having length 10 characters

Fees of type double

Duration of type integer

A function New Sports() which allows user to enter S_Code, S_Name and Duration.

Also assign the values to Fees as per the following criteria given below.

S Name	Fees
Table Tennis	2500
Swimming	3000
Football	2000

12   Define the following terms :   **2**

(i)   void*ptr

(ii)   Deferencing Operator

13   Consider the table "School" given below. Write SQL commands for the statements (i) to (iii).   **3**

Relation : **SCHOOL**

CODE	TEACHER NAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1101	SHYAM SUNDAR	MATHS	13/5/2001	25	12
2201	RAVI PRASAD	ENGLISH	07/06/1996	22	08
3301	TEJENDR SINGH	PHYSICS	10/10/1999	26	14
4401	HARI OM	CHEMISTRY	15/02/2001	26	14
5501	UMA SHANKAR	SPORTS	22/12/2000	20	10
6601	GUNJAN	COMPUTER	16/11/1998	24	09

(i)   To display TEACHER NAME, PERIODS of all teachers whose experience is less than 10 years.

(ii)   To display the teachers name and subject whose name contains "R"

(iii)   To display CODE, TEACHERNAME and SUBJECT of all those teachers who have joined the school after '01/01/2000'

14 Identify the error(s). Rewrite the corrected code and underline the corrections. **2**

```
#include<iostream.h>
void main()
{   int val=18;
    double();
    cout>>val;
}
void double(int & val)
{   val=*2;
}
```

15 Write a function to search a specific element in an integer array of 20 elements using binary search technique. **2**

16 Define a class Mobilebill with the following specifications **4**

Private Members
- M_no of type unsigned long
- C_Name of type character array (String)
- NOC type integer   //Number of calls
- Amount of type double
- Define a member function call_bill() to calculate the mobile bill for the month as per the following criteria

No. of calls	Amount
0 – 50	Free
51 – 100	20p per call
101 – 200	50p per call
201 and above	75p per call

Rent will be Rs. 100/- and is compulsory.

Public Members :
- A function getDetails() which allows the user to enter mobile no., customer name, total no. of calls and invoke a function call_bill().
- A function display_bill() to display the calculated bill with all details.

17 Answer the questions (i) to (iii) based on the following :   **3**

```
class  Top
{   int  No_of_cars;
    int  no_of_hrs;
    public:
    float  Price;
    Top();
    void  enter_T();
    void  exit_T();
};
class Middle  :  protected  Top
{   protected:
    int  No_of_bikes;
    int  no_of_mins;
    public:
    Middle();
    void  enter_M();
    void  exit_M();
};
class Ground  :  Public  Middle
{   int  no_of_cars;
    int  No_of_bikes;
    int  duration;
    public:
    Ground();
    void  enter_G();
    void  exit_G();
};
```

(i) Write statement to find sizes of an object class Ground and class middle in bytes.

(ii) Write a statement to invoke member function(s) of class middle by the object of class Ground.

(iii) Write name of all the data members which are accessible from the objects of class Ground.

18   Define a function not_sold() in C++ to copy record(s) of a binary file   **3**
         GIFT.DAT, into another file LEFTOUT.DAT, which have not sold
         during festival season.

```
struct GIFT
{  int G_code;
   char Gift_item[20], Gift_type[20];
   char G_status;  //sold status 'Y' for yes and 'N' for No
   float Gift_price;
};
```

19   (a)   What is Normalization ? Why there is a need for Normalization ?   **2**

         (b)   Define Logical Data Model with the help of an example.   **1**

20   Differentiate between structural tags and Formatting tags in HTML with an   **2**
         example of each.

21   Write the HTML code to create the following :   **3**

Streams available are :
I. Commerce
• Accounts
• Business Studies
II. Science
• Chemistry
• Physics

22   What happens if the image to be displayed on the web page is not available ?   **3**
         Explain the tag and attribute used to do so with the help of an example.

23   Explain the difference between '/' and '%' operator in C++.   **2**

24 Write the equivalent switch....case statement for the following : 2

```
if(no==15||no==21)
        cout<<"Odd number";
else if(no==12||no==24)
        cout<<"Even number";
else if(no==11||no++17)
        cout<<"Prime number";
else
        cout<<"Not a specified number";
```

25 How many times string "Hello" will be printed on the screen ? 1

```
while(0)
{   cout<<"Hello";     }
```

26 Give the difference between getch() and getchar() functions in C++. 1

27 Differentite between ios::nocreate and ios::noreplace modes in C++. 1

28 Write a statement to move get file pointer to the end of the file in C++. 1

29 Define foreign key of a table. 1

30 Write the HTML code to set the height and width of an inserted image "Star.jpg" as 200 pixels and 150 pixels respectively. 1

31 Complete the following HTML code to set the text colour of the whole body as "Blue". 1

<BODY_____>

———————

This Question Paper consists of **31** questions and **8** printed pages.

Roll No. ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚ Code No. **63/OSS/1**

SET **B**

COMPUTER SCIENCE
(330)

Day and Date of Examination _____

Signature of Invigilators 1. _____

2. _____

General Instructions :

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4 Write your Question Paper Code No. **63/OSS/1, Set-B** on the Answer-Book.

COMPUTER SCIENCE

(330)

Time : **3** Hours]   [Maximum Marks : **60**

Note :   (i)   Answer **all** questions.

(ii)   Marks allotted to each question are given on the right-hand side.

(iii) Use C++ programming language to answer the programming questions.

1   Define the following terms :   **2**

(i)   Data Abstraction

(ii)   Encapsulation

2   Write the output of the following program :   **2**

```
#include<isotream.h>
#include<ctype.h>
void main()
{   char Str[]= "WelCome 2021";
    for (int a=0; Str[a]! = '\0';a++)
    {   if(isalpha(Str[a]))
        {   if(isupper(Str[a]))
                    str[a]++;
            else
                    Str[a]=Str[a-1];
        }
        else  if(isdigit(Str[a]))
                    Str[a]'#';
        else
                    str[a]='@';
    }
    cout<<Str;
}
```

3   Define a structure 'Games' in C++ with the following specifications: **3**

Members :

- G_name of type character

- Age of type integer

- Fees of type double

- A function AssignGame() which allows users to enter Age and assign the values to

   G_Name and Fees as per the following age criteria :

Age	S Name	Fees
8 to 10	Cricket	3000
12 to 15	Lawn Tennis	2500
16 to 20	Football	2000

4   State four advantages of Green computing.   **1**

5   How is Server Virtualization different from Network Virtualization ?   **1**

6   Differentiate between Structural tags and Formatting tags in HTML with an example of each.   **2**

7   Name the header files to which the following built in functions belong :   **1**

(i)   getche( )

(ii)   strcat( )

8   For an integer number with assigned value as a=5, write a statement using a conditional operator to check and display whether number is "positive" or "negative".   **1**

9   Define the following terms :   **2**

(i)   void*ptr

(ii)   Deferencing Operator

10 _____ symbol is used to declare a reference variable. **1**

11 Write output of the following program : **2**

```
#include<iostream.h>
int X=15, Y=30;
void inter_change (int &x, int y)
{   X = x+y;
    Y = x-y;
    X = x-y;  }
}
void main()
{   int X=20, Y=40;
    cout<<X<<""<<::Y<<'\n';
    inter_change (X,::Y);
    cout<<::X<<""<<Y;
}
```

12 Answer the following questions : **2×2=4**

(a) Give any difference between prefix and postfix operators. Give one example for both.

(b) Difference between break statement and exit() function from behavioural point of view. Also give an example in C++.

13 (a) What is Normalization ? Why there is a need for Normalization ? **2**

(b) Define Logical Data Model with the help of an example. **1**

14 How many times string "Hello" will be printed on the screen ? **1**

```
while(0)
{   cout<<"Hello";
}
```

15 Write a statement to move get file pointer to the end of file in C++. **1**

16 Write the equivalent if....else statement for the following code: **2**

```
switch(day)
{   case1:
    case2:
    case3:
    case4:
    case5:cout<<"Working days"; break;
    case6:
    case7:cout<<"Week end";
}
```

17 Differentiate between ios::nocreate and ios::noreplace in C++. **1**

18 Give one difference between getch() and getchar() C++. **1**

19 Consider the table "College" given below. Write SQL commands for the statements (i) to (iii). **3**

Relation : **COLLEGE**

LECTURER	SUBJECT	DOJ	PERIODS	EXPERIENCE
HARI OM	MATHS	22/12/2018	22	10
TANNU	ENGLISH	07/06/2005	26	18
TEJENDR SINGH	PHYSICS	11/01/2018	21	21
SHYAM SUNDAR	CHEMISTRY	23/08/2015	24	12
JAI SHANKAR	SPORTS	23/08/2003	22	16
RAVI PRASAD	COMPUTER	26/10/2009	20	12

(i) To display the total number of periods in three months a teacher will have who are having experience less than 10 years.

(ii) To display lecturer name and subject with their periods in ascending order of data of joining.

(iii) To display lecturer name whose name begins with 'T'.

20 Complete the following HTML code to set the text colour of the whole body as "Blue". **1**

<BODY _____>

21 Write the HTML code to display 2D rule in a web page having width of 2 pixels and without any shade. **1**

22 Write the HTML code to display a horizontal line of green colour in the center of a screen.   **1**

23 Define foreign key in a table.   **1**

24 Answer the questions (i) to (iii) based on the following code given below :   **3**

```
class Top
{   int No_of cars;
    int no_of_hrs;
    public:
    float Price;
    Top();
    void enter_T();
    void exit_T();
};
class Middle : protected Top
{   protected:
    int No_of_bikes;
    int no_of_mins;
    public:
    Middle();
    void enter_M();
    void exit_M();
};
class Ground : Public Middle
{   int no_of_cars;
    int No_of_bikes;
    in duration;
    public:
    Ground();
    void enter_G();
    void exit_G();
};
```

(i)   Write statement to find sizes of an object class Ground and class Middle in bytes.

(ii) Write a statement to invoke member function(s) of class Middle by the object of class Ground.

(iii) Write names of all the data members which are accessible from the objects of class Ground.

25 Write a program to count number of occurrences of any specific element   **2**
present in a given array. For example in this array 18 comes 3 times.
```
int arr[]={15, 18, 15, 12, 25, 18, 22, 18};
```

26 Define a class Mobilebill with the following specifications   **4**

Private Members

- M_no of type unsigned long

- C_Name of type character array (String)

- NOC type integer   //Number of calls

- Amount of type double

- Define a member function call_bill() to calculate the mobile bill of a
  month as per the following criteria

No. of calls	Amount
0 – 50	Free
51 – 100	20p per call
101 – 200	50p per call
201 and above	75p per call

  Rent will be Rs. 100/- and is compulsory.

  Public Members :

- A function getDetails() which allows user to enter mobile no.,
  costumer name, total no. of calls and invoke a function call_bill().

- A function display_bill() to display the calculated bill with all details.

27 Define a function not_sold() in C++ to copy record(s) of a binary file   **3**
GIFT.DAT, into another file LEFTOUT.DAT, which had not sold
during festival sale.
```
struct GIFT
{  int G_code;
   char Gift_item[20], Gift_type[20];
   char G_status;  //sold status in 'Y' for yes and 'N' for No
   float Gift_price;
};
```

28 Identify the error(s). Rewrite the corrected code and underline the corrections. **2**

```
#include<iostream.h>
void main()
{   int val=18;
    double();
    cout>>val;
}
void double(int & val)
{   val=*2;        }
```

29 Explain the arithmetic assignment operator in C++, with example. **2**

30 Write the HTML code to create the following : **3**

> **Streams available are :**
>
> I.   Commerce
>
>   • Accounts
>
>   • Business Studies
>
> II. Science
>
>   • Chemistry
>
>   • Physics

31 What happens if the image to be displayed on the web page is not available ? Explain the tag and attribute used to do so with the help of an example. **3**

_____

Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐

Code No. 63/OSS/1

SET **C**

COMPUTER SCIENCE
(330)

Day and Date of Examination _____

Signature of Invigilators   1. _____

                               2. _____

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COMPUTER SCIENCE

(330)

Time : **3** Hours]   [Maximum Marks : **60**

Note :   (i)   Answer **all** questions.

         (ii)   Marks allotted to each question are given on the right-hand side.

         (iii)   Use C++ programming language to answer the programming questions.

1   Define the following terms :   **2**

    (i)   this pointer

    (ii)   new operator

2   Write output of the following program.   **2**

```
#include<iostream.h>
int  X=15,  Y=30;
void  inter_change  (int  &  x,  int  y)
{   X  =  x+y;
    Y  =  x-y;
    X  =  x-y;
}
void  main()
{   int  X=20,  Y=40;
    cout<<X<<""<<::Y<<'\n';
    inter_change  (X,::Y);
    cout<<::X<<""<<Y;
}
```

3 Define a structure Sports in C++ with the following specifications :   **3**

Members:

S_Code of type integer

S_Name of type character array having length 10 characters

Fees of type double

Duration of type integer

A function New Sports() which allows user to enter S_Code, S_Name, and Duration.

Also, assign the values to Fees as per the following criteria condiotns :

S Name	Fees
Table Tennis	2500
Swimming	3000
Football	2000

4 How is Storage Virtualization different from Software Virtualization ?   **1**

5 State four advantages of Grid computing.   **1**

6 What happens if the image to be displayed on the web page is not available ?   **3** Explain the tag and attribute used to do so with the help of an example.

7 Answer the following questions :   **2×2=4**

    (a) Give any difference between prefix and postfix operator. Give one example of both.

    (b) Differentiate between break statement and exit() function from behavioural point of view. Also, give an example in C++.

8 _____ symbol is sued to declare a reference variable.   **1**

9 Define the following terms :   **2**

    (i) Function overloading

    (ii) Hybrid Inheritance

10 For an integer number with assigned value as a=5, write a statement using   **1** conditional operator to check and display whether an number is positive or negative ?

11 Write output of the following program :　　　　　　　　　　　　　**2**

```
#include<isotream.h>
#include<ctype.h>
void main()
{   char Str[]= "WelCome 2021";
    for (int a=0; Str[a]! = '\0';a++)
    {   if(isalpha(Str[a]))
        {   if(supper(str[a]))
                str[a]++;
            else
                Str[a]=Str[a-1];
        }
    else  if(isdigit(Str[a]))
            Str[a]'#';
    else
            str[a]='@';
}
cout<<Str;
}
```

12 Name the header files to which the following built-in functions belong :　　**1**

(i)　getche()

(ii)　isdigit ()

13 (a)　What is Normalization ? Why there is a need for Normalization ?　　**2**

(b)　Define Logical Data Model with the help of an example.　　**1**

14 Explain the difference between '/' and '%' operator in C++.　　**2**

15 Differentiate between ios::nocreate and ios::noreplace.　　**1**

16 Write a statement to move get file pointer to the end of the file in C++.　　**1**

17 Write the equivalent switch....case statement for the following given code :　　　**2**

```
if(mm==2||mm==3)
        cout<<"Spring";
else if(mm==4||mm==5||mm==6)
        cout<<"Summer";
else if(mm==7||mm==8||mm==9)
        cout<<"Monsoon";
else if(mm==10||mm==11||)
        cout<<"Autumn";
else if(mm==12||mm==1||)
        cout<<"Winter";
else
        cout<<"Month doesn't exists";
```

18 How many times string "Hello" will be printed on the screen ?　　　**1**

```
while(0)
{   cout<<"Hello";
}
```

19 Consider the table "School" given below. Write SQL commands for the statements (i) to (iii).　　　**3**

Relation : **SCHOOL**

CODE	TEACHER NAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1101	SHYAM SUNDAR	MATHS	13/5/2001	25	12
2201	RAVI PRASAD	ENGLISH	07/06/1996	22	08
3301	TEJENDR SINGH	PHYSICS	10/10/1999	26	14
4401	HARI OM	CHEMISTRY	15/02/2001	26	14
5501	UMA SHANKAR	SPORTS	22/12/2000	20	10
6601	GUNJAN	COMPUTER	16/11/1998	24	09

(i) To display TEACHER NAME, PERIODS of all teachers whose experience is less than 10 years.

(ii) To display the teacher's name and subject whose name contains "R"

(iii) To display CODE, TEACHERNAME and SUBJECT of all the teachers who have joined the school after '01/01/2000'.

20 Fill the following blanks :   **1**

In HTML, values of ALIGN attribute of <img> tag are Left, _____,

_____, _____, _____.

21 Write the HTML code to set the height and width of an inserted image   **1**
"Star.jpg" as 200 pixels and 150 pixels respectively.

22 Complete the following HTML code to set the text colour of the whole   **1**
body as "Blue".
<BODY_____>

23 Identify the error(s). Rewrite the corrected code and underline the corrections.   **2**

```
#include<iostream.h>
void main()
{   int val=18;
    double();
    cout<<val;
}
void double(int & val)
{   val=*2;
}
```

24 Define a function not_sold() in C++ to copy record(s) of a binary file   **3**
GIFT.DAT, into another file LEFTOUT.DAT, which had not sold during
festival sale.

```
struct GIFT
{ int G_code;
  char Gift_item[20], Gift_type[20];
  char G_status;  //sold status 'Y' for yes and 'N' for No
  float Gift_price;
};
```

25 Define foreign key of a table.   **1**

26 Answer the questions (i) to (iii) based on the following :   **3**

```
class  Top
{    int  No_of  cars;
     int  no_of_hrs;
     public:
     float  Price;
     Top();
     void  enter_T();
     void  exit_T();
};
class Middle  :  protected  Top
{    protected:
     int  No_of_bikes;
     int  no_of_mins;
     public:
     Middle();
     void  enter_M();
     void  exit_M();
};
class Ground  :  Public  Middle
{    int  no_of_cars;
     int  No_of_bikes;
     in  duration;
     public:
     Ground();
     void  enter_G();
     void  exit_G();
};
```

(i) Write statement to find size of an object class Ground griound and class Middle in bytes.

(ii) Write a statement to invoke member function of class Middle by the object of class Ground.

(iii) Write name of all the data members which are accessible from the objects of class Ground.

27 Write a function to search a specific element using binary search   **2** technique, assuming that the elements in the given array are stored in.

28 Define a class Mobilebill with the following specifications   **4**

Private Members
- M_no of type unsigned long
- C_Name of type character array (String)
- NOC type integer   //Number of calls
- Amount of type double
- Define a member function call_bill() to calculate the mobile bill for the month as per the following criteria :

No. of calls	Amount
0 – 50	Free
51 – 100	20p per call
101 – 200	50p per call
201 and above	75p per call

Rent will be Rs. 100/- and is compulsory.

Public Members :
- A function getDetails() which allows the user to enter mobile no., costumer name, total no. of calls and invoke a function call_bill().
- A function display_bill() to display the calculated bill with all details.

29 Give one difference between getch() and getchar() in C++.   **1**

30 Differentiate between Structural tags and Formatting tags in HTML with an example of each.   **2**

31 Write the HTML code to create the following :   **3**

> **My Books Store**
> I.   Book_1
>   Title :
>   Computer Science
>   Author :
>   E Balagurusamy
> I.   Book_2
>   Title :
>   The Complete Reference
>   Author :
>   James Gosling