

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) log(x)
 - (ii) isalpha(c)
- 2 Is 7 and '7' the same according to C++? Justify your answer. 1
- 3 Can an Identifier in C++ contain_ (underscore)? 1
- 4 What do you mean by software virtualization? 1
- 5 What do you mean by hybrid cloud? 1
- 6 Explain empty tag with an example. 2
- 7 Write any two uses of creating modules during programming. 2
- 8 Explain if... else statement in C++ with its syntax. 2
- 9 Write a program to create an array of N elements, using selection sort, sort the elements of the array in ascending order and print the new array. 4



- 10** Find the output of the following code. Assume that all required header files are attached. **1**

```
#include<iostream.h>
int main(){
int A[] = {10, 12, 15, 17, 20, 20, 30};
int i;
for (i=0; i < 6; i++){
    If (A[i] % 2 == 0)
        A[i] /= 2;
    If (A[i] % 5 == 0)
        A[i] /= 5;
    }
    for (i = 0; i < 6; i++)
        cout<< A[i] << "#";
    return 0;
}
```

- 11** struct str **3**

```
{
int a;
int b;
int c;
};
struct str1
{
char n[20];
str x;
}
void main()
{
str1 p;
}
```

How will you access n, a and b of the above structure?

- 12** Find the output produced by the following program segment. Assume all header functions are imported. **2**

```
void main()
{
int a = 100;
int *b = &a;
cout<<a<<" "<<*b<<endl;
a++;
cout<<a<<" "<<*b<<endl;
}
```



- 13** Write SQL commands for the below given questions based on the below given EMP table. **3**

EMPNO	EMPNAME	GENDER	DEPT	DATE_OF_JOIN	SALARY
E001A	PANKAJ	M	SALES	2019-06-01	26000.00
E002A	ANJU	F	MARKETING	2019-08-01	20000.00
E003A	SAHIL	M	HR	2020-01-15	32000.00
E004A	HARSHITHA	F	FINANCE	2020-09-14	30500.00
E005A	RAHUL	M	SALES	2021-07-13	17500.00
E006A	VEENA	F	FINANCE	2022-04-01	18600.00

- (i) Display the EMPNO AND SALARY of the employees belonging to MARKETING dept.
(ii) Change the salary of Rahul to 18500.00
(iii) Delete the record of the employee number E006A

- 14** Identify how many times the loop gets executed: **2**

```
int n = 10 ;  
while (n >=5)  
{  
    n = n-2 ;  
}
```

- 15** Define the terms Sorting and Summarizing. **2**

- 16** Define a class PRIME_PACK in C++ with the following specifications **4**

Private members :

PACKID integer
PACK_NAME 20 character
VALIDITY float
PACK_TYPE 20 character

Public functions :

A constructor to initialise VALIDITY as 365 and PACK_TYPE as GOLD
accept() to accept the full data
display() to display the full data



- 17** Class one { **4**
- ```

 int A1;
 protected:
 float A2;
 public: one();
 void Get1(); void show1(); };
Class Two: private one {
 int B1;
 protected: float B2;
 public: Two(); void Get2(); void show2(); };

Class Three: public Two {
 int C1;
 public: Three(); void Get3(); void show3(); };
void main() {
 Three T; //statement 1
 _____ //statement 2
}

```
- (i) Which type of inheritance is illustrated in above example?
- (ii) Write the names of all member functions which are directly accessible by the object T of class Three.
- (iii) Write statement 2 to call function show2() from the object T.
- 18** Write a C++ program to write the even numbers from 2 to 100 in a data **3**  
file NUM.TXT.
- 19** Define domain in databases. **1**
- 20** Write the html tag to display an image known as "nios.jpg" having a width **2**  
of 40 pixels in your webpage.



**21** What will the below given html program produce?

**3**

```
<html>
<body>

 Control Structures
 Introduction to C++
 Basic Concepts
 Pointers

 <ol type = '1' START = 5>
 DBMS
 HTML
 Emerging Trends
 Web Design

</body>
</html>
```

**22** Write the html tag to assign background colour of the webpage as green and the text colour as red.

**3**

**23** What do you mean by string literal in C++? Support with an example.

**2**



- 24** Find the output of the following code. Assume that all required header files are attached. **3**

```
#include<iostream.h>

void replace (char s[]) {
for(int i=0; s[i]!='\0'; i++) {
 if ((i%2!=0) && s[i] != s[i+1])
 {
 s[i] = '@'
 }
else if (s[i] == s[i+1]) {
 s[i+1] = '!';
 i++;
 }
}
}

int main() { char str[] = "SUCCES";
 replace (str);
 cout << str;
 return 0;
}
```

- 25** What is the use of continue statement in C++? **1**
- 26** What do you mean by formal parameters? **1**
- 27** What is the use of the parameter ios :: out? **1**



- 28 What is the use of tellp() pointer? 1
- 29 Define foreign key. 1
- 30 Where do we see the output of a html document? 1
- 31 What is the use of enumerated data type? 1
- 





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**(330)**

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

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

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- |          |                                                                                                         |          |
|----------|---------------------------------------------------------------------------------------------------------|----------|
| <b>1</b> | What is the use of enumerated data type?                                                                | <b>1</b> |
| <b>2</b> | What is the use of tellp() pointer?                                                                     | <b>1</b> |
| <b>3</b> | What is the use of the parameter ios :: out?                                                            | <b>1</b> |
| <b>4</b> | Write one advantage of Grid computing.                                                                  | <b>1</b> |
| <b>5</b> | What do you mean by Green computing?                                                                    | <b>1</b> |
| <b>6</b> | Write the html tag to display an image known as "nios.jpg" having a width of 40 pixels in your webpage. | <b>2</b> |
| <b>7</b> | Write any two advantages of OOP.                                                                        | <b>2</b> |



- 8** Find the output produced by the following program segment. Assume all header functions are imported. **2**

```
void main()
{
int a = 100;
int *b = &a;
cout<<a<<" "<<*b<<endl;
a++;
cout<<a<<" "<<*b<<endl;
}
```

- 9** Define a class PRIME\_PACK in C++ with the following specifications **4**

Private members :

PACKID integer

PACK\_NAME 20 character

VALIDITY float

PACK\_TYPE 20 character

Public functions :

A constructor to initialise VALIDITY as 365 and PACK\_TYPE as GOLD

accept() to accept the full data

display() to display the full data

- 10** Identify how many times the loop gets executed: **2**

```
int n = 10 ;
while (n >=5)
{
 n = n-2 ;
}
```



- 11** Find the output of the following code. Assume that all required header files are attached. **3**

```
#include<iostream.h>
void replace (char s[]) {
for(int i=0; s[i]!='\0'; i++) {
 if ((i%2!=0) && s[i] != s[i+1])
 {
 s[i] = '@'
 }
else if (s[i] == s[i+1]) {
 s[i+1] = '!';
 i++;
 }
}
}
int main() { char str[] = "SUCCES";
 replace (str);
 cout << str;
 return 0;
}
```

- 12** Explain empty tag with an example. **2**

- 13** Write SQL commands for the below given questions based on the below given EMP table. **3**

EMPNO	EMPNAME	GENDER	DEPT	DATE_OF_JOIN	SALARY
E001A	PANKAJ	M	SALES	2019-06-01	26000.00
E002A	ANJU	F	MARKETING	2019-08-01	20000.00
E003A	SAHIL	M	HR	2020-01-15	32000.00
E004A	HARSHITHA	F	FINANCE	2020-09-14	30500.00
E005A	RAHUL	M	SALES	2021-07-13	17500.00
E006A	VEENA	F	FINANCE	2022-04-01	18600.00

- Display the details of the employee belonging to MARKETING or SALES dept.
- Add a new column mobile int(10)
- Delete the record of the employees whose salary is less than 15000.



- 14 Explain if... else statement in C++ with its syntax. 2
- 15 Explain Calculation stage of Data Processing with an example. 2
- 16 Write a program to create an array of N elements, using selection sort, sort the elements of the array in ascending order and print the new array. 4
- 17 Write a C++ program to write the even numbers from 2 to 100 in a data file NUM.TXT. 3
- 18 Class one { 4
- ```

    int A1;
    protected:
    float A2;
    public: one();
           void Get1(); void show1(); };
Class Two: private one {
    int B1;
    protected: float B2;
    public: Two(); void Get2(); void show2(); };

Class Three: public Two {
    int C1;
    public: Three(); void Get3(); void show3(); };

void main() {
    Three T; //statement 1
    _____ //statement 2
}

```
- (i) Which type of inheritance is illustrated in above example?
- (ii) Write the names of all member functions which are directly accessible by the object T of class Three.
- (iii) Write statement 2 to call function show2() from the object T.



19 Define Normalization. **1**

20 Find the output of the following code. Assume that all required header files are attached. **1**

```
#include<iostream.h>

int main(){

int A[] = {10, 12, 15, 17, 20, 20, 30};

int i;

for (i=0; i < 6; i++){

    If (A[i] % 2 == 0)

        A[i] /= 2;

    If (A[i] % 5 == 0)

        A[i] /= 5;

}

for (i = 0; i < 6; i++)

    cout<< A[i] << "#";

return 0;

}
```

21 Write the html tag to assign background colour of the webpage as green and the text colour as red. **3**



22 What will the below given html program produce? **3**

```
<html>
<body>
    <ul>
        <li>Control Structures</li>
        <li>Introduction to C++ </li>
        <li>Basic Concepts </li>
        <li>Pointers </li>
    </ul>
    <ol type = '1' START = 5>
        <li>DBMS</li>
        <li>HTML</li>
        <li>Emerging Trends</li>
        <li>Web Design</li>
    </ol>
</body>
</html>
```

23 Explain the postfix operation of C++ with an example. **2**

24 struct str **3**

```
{
int a;
int b;
int c;
};
struct str1
{
char n[20];
str x;
}
void main()
{
str1 p;
}
```

How will you access n, a and b of the above structure?



- 25** Name the header files to which the following built in functions belong. **1**
- (i) `log(x)`
 - (ii) `isalpha(c)`
- 26** When will `strcmp(S1, S2)` return 0 (zero)? **1**
- 27** Can an Identifier in C++ contain_ (underscore)? **1**
- 28** Is 7 and '7' the same according to C++? Justify your answer. **1**
- 29** What do you mean by Conceptual Data Model? **1**
- 30** Can Multiple tags be applied together in HTML, Show an example. **1**
- 31** What is the use of continue statement in C++? **1**
-



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

- | | | |
|----------|--|----------|
| 1 | What is the use of tellp() pointer? | 1 |
| 2 | What is the use of the parameter ios :: out? | 1 |
| 3 | What is the use of enumerated data type? | 1 |
| 4 | Define the term Refurbish. | 1 |
| 5 | What is the use of ENERGY STAR certified technology? | 1 |
| 6 | Find the output produced by the following program segment. Assume all header functions are imported. | 2 |

```
void main()
{
int a = 100;
int *b = &a;
cout<<a<<" "<<*b<<endl;
a++;
cout<<a<<" "<<*b<<endl;
}
```



- 7 What is the use of partitioning a program into individual components? 2
- 8 Write the html tag to display an image known as "nios.jpg" having a width of 40 pixels in your webpage. 2
- 9 Define a class PRIME_PACK in C++ with the following specifications 4
- Private members :
- PACKID integer
 PACK_NAME 20 character
 VALIDITY float
 PACK_TYPE 20 character
- Public functions :
- A constructor to initialise VALIDITY as 365 and PACK_TYPE as GOLD
 accept() to accept the full data
 display() to display the full data
- 10 Explain empty tag with an example. 2
- 11 Find the output of the following code. Assume that all required header files are attached. 3
- ```
#include<iostream.h>
void replace (char s[]) {
for(int i=0; s[i]!='\0'; i++) {
 if ((i%2!=0) && s[i] != s[i+1])
 {
 s[i] = '@'
 }
else if (s[i] == s[i+1]) {
 s[i+1] = '!';
 i++;
 }
}
}
int main() { char str[] = "SUCCES";
 replace (str);
 cout << str;
 return 0;
}
```



12 Explain if... else statement in C++ with its syntax. 2

13 Write SQL commands for the below given questions based on the below given EMP table. 3

| EMPNO | EMPNAME   | GENDER | DEPT      | DATE_OF_JOIN | SALARY   |
|-------|-----------|--------|-----------|--------------|----------|
| E001A | PANKAJ    | M      | SALES     | 2019-06-01   | 26000.00 |
| E002A | ANJU      | F      | MARKETING | 2019-08-01   | 20000.00 |
| E003A | SAHIL     | M      | HR        | 2020-01-15   | 32000.00 |
| E004A | HARSHITHA | F      | FINANCE   | 2020-09-14   | 30500.00 |
| E005A | RAHUL     | M      | SALES     | 2021-07-13   | 17500.00 |
| E006A | VEENA     | F      | FINANCE   | 2022-04-01   | 18600.00 |

- (i) Display the details of the male employee having salary less than 20,000.
- (ii) Drop the column gender.
- (iii) Change the gender to 'Male' for the male employees.

14 Find the output of the following code. Assume that all required header files are attached. 1

```
#include<iostream.h>
int main(){
int A[] = {10, 12, 15, 17, 20, 20, 30};
int i;
for (i=0; i < 6; i++){
 If (A[i] % 2 == 0)
 A[i] /= 2;
 If (A[i] % 5 == 0)
 A[i] /= 5;
}
for (i = 0; i < 6; i++)
 cout<< A[i] << "#";
return 0;
}
```



**15** Name the four stages that come in the manipulation step of data processing. **2**

**16** Write a program to create an array of N elements, using selection sort, sort the elements of the array in ascending order and print the new array. **4**

**17** What will the below given html program produce? **3**

```
<html>
<body>

 Control Structures
 Introduction to C++
 Basic Concepts
 Pointers

 <ol type = '1' START = 5>
 DBMS
 HTML
 Emerging Trends
 Web Design

</body>
</html>
```

**18** Write the html tag to assign background colour of the webpage as green and the text colour as red. **3**

**19** Define Cartesian Product of two tables. **1**



**20** Identify how many times the loop gets executed: **2**

```
int n = 10 ;
while (n >=5)
{
 n = n-2 ;
}
```

**21** Write a C++ program to write the even numbers from 2 to 100 in a data file NUM.TXT. **3**

**22** Class one { **4**

```
 int A1;
 protected:
 float A2;
 public: one();
 void Get1(); void show1(); };

Class Two: private one {
 int B1;
 protected: float B2;
 public: Two(); void Get2(); void show2(); };

Class Three: public Two {
 int C1;
 public: Three(); void Get3(); void show3(); };

void main() {
 Three T; //statement 1
 _____ //statement 2
}
```

- (i) Which type of inheritance is illustrated in above example?
- (ii) Write the names of all member functions which are directly accessible by the object T of class Three.
- (iii) Write statement 2 to call function show2() from the object T.



**23** What do you mean by conditional operator in C++? Support with an example. **2**

**24** struct str **3**

```
{
 int a;
 int b;
 int c;
};

struct str1
{
 char n[20];
 str x;
}

void main()
{
 str1 p;
}
```

How will you access n, a and b of the above structure?

**25** Is 7 and '7' the same according to C++? Justify your answer. **1**

**26** What do you mean by local variable? **1**

**27** What is the use of continue statement in C++? **1**



- 28 Can an Identifier in C++ contain\_ (underscore)? 1
- 29 Define Schema. 1
- 30 What is the use of <pre> .. </pre> tag in HTML. 1
- 31 Name the header files to which the following built in functions belong. 1
- (i) log(x)
  - (ii) isalpha(c)
- 

