Computer Science 330

Time 3.00 hrs   <u>**M.M. 60**</u>

<u>Note:</u>

i. This question paper consists of 39 questions in all.

ii. All questions are compulsory.

iii. Marks are given against each question.

iv. Section A consists of

   a. Q.No. 1 to 12 – Multiple Choice type questions (MCQs) carrying 1 mark each. Select and write the most appropriate option out of the four options given in each of these questions. An internal choice has been provided in some of these questions. You have to attempt only one of the given choices in such questions.

   b. Q.No. 13 to 24 carry 01 marks each and Q.No. 25 to 27 – Objective type questions of 02 marks each (with 2 sub-parts of 1 mark each).An internal choice has been provided in some of these questions, you have to attempt only one of the given choices in such questions. Attempt these questions as per the instructions given for each of the questions 13 – 27.

v. Section B consists of

   a. Q.No. 28 to 35 – Very Short questions carrying 02 marks each to be answered in the range of 30 to 50 words.

   b. Q.No. 36 to 37 – Short Answer type questions carrying 03 marks each to be answered in the range of 50 to 80 words.

   c. Q.No. 38 to 39 – Long Answer type questions carrying 04 marks each to be answered in the range of 80 to 120 words.

S. No		Marks
	SECTION- A	
1.	(i).How to create an ordered list (a list with the list items in numbers) in HTML? A. B. C. <i> D. OR (ii).Which of the following is the root tag of the HTML document? A. <title> B. <body> C. <html> D. <head>	1

2.	(i).Which of the following is shortcut key combination to close a presentation? A. Ctrl+Q B. Ctrl+C C. Alt+Q D. Shift+C OR (ii).F5 key is used in a presentation for: A. Closing the presentation. B. Saving the presentation. C. Slideshow of a presentation. D. Inserting a new slide in the presentation.	1
3.	How to insert an image in HTML? A. B. C. D. 	1
4.	Which one of the following is not a string function? A. strcmp() B. strcpy() C. strdel() D. strlen()	1
5.	(i).Which of the following tag is used for inserting the largest heading in HTML? A. h1 B. h5 C. h6 D. h2 OR (ii).Which of the following tag is used for inserting the smallest heading in HTML? A. h1 B. h5 C. h6 D. h2	1

6.	(i).Which character is used to indicate an end tag? A. < B. > C. / D. * OR (ii).What is the use of tag in HTML? A. For making content appearance italics B. To create vertical rule between sections C. To put a line break in the text. D. To create horizontal rule between sections	1
7.	(i).Consider the following statement: int *p; In the statement above: A. p is a integer number B. p is a pointer to a function. C. p is a pointer to an integer D. None of the above OR (ii).The expression *ptr can be said to .... A. be a pointer to ptr B. refer to the contents of ptr C. refer to the value of the variable pointed to by ptr D. dereference ptr	1
8.	Which of the following gives a text description of the image if it is not available? A. alt B. title C. src D. img	1
9.	Which of the following cannot be the value of ALIGN attribute A. left B. right C. justify D. font	1

10.	What is meant by ios :: trunc file parameter A. It opens the file in input mode. The file pointer is at the top of the file and it is ready for reading. B. The file pointer is at the end of the file and it allows to add data or to modify the existing data anywhere in the file. C. It deletes the contents of the file if exist. D. If file is not present, it opens the file otherwise open statement fails.	1
11.	Which of the following statement will be used to move the pointer 100 bytes forward from the current position N.? A. infile.seekg (100, ios::cur); B. infile.seekg (100, ios::beg); C. infile.tellg (100, ios::cur); D. infile.tellg (100, ios::beg);	1
12.	(i).Which of the following is not a Chart type in Spreadsheet? A. Bar Chart B. Line Chart C. Flip Chart D. Stock Chart OR (ii).A formula must start with: A. = B. + C. (D. *	1
13.	Give one example of Social networking platform?	1
14.	(i)The Octal equivalent of $(342)_{10}$ is ? OR (ii)The Binary equivalent of (31F) is?	1

| 15. | (i). What will be output of the following program if the input value of y is 13 ?

void main()

{ int y ;

cin >> y ;

if (y % 3 = = 0)

 cout << "Hello" ;

else

cout << " Students" ;

}

OR

(ii). What will be output of the following program?
include < iostream.h >
 void main ( )
{
int A = 5,*ptr;
ptr = &A;
cout << A;
 A=A+5;
cout <<*ptr;
} | 1 |
|---|---|---|
| 16. | (i). The decimal equivalent of $(A2C)_{16}$ is ?
OR
(ii). 2's complement of the number $(00110)_2$ is ? | 1 |
| 17. | (i). Which tag is used to insert image in a html page?
OR
(ii). Which tag is used to insert hyperlink in html page? | 1 |
| 18. | (i). What is the header file for clrscr()?

OR

(ii). What is the header file for getch()? | 1 |
| 19. | Which logic gate is known as Universal Logic Gate? | 1 |
| 20. | ISP stands for? | 1 |
| 21. | Consider the program segment.
switch (choice)
{ case 'W' : cout << "Who" ;
case 'R' : cout << "Are" ;
case 'B' : cout << "You" ;
default : cout << "error" ;
break ; }
What would be the output if choice = 'R'? | 1 |

22.	(i).What will be the output of the following code	1

```
void main()
{
int a=1;
while(a<=5)
{
   a++;
   if(a%4!=0)
    cout<<a <<" ";
   else
   break;
}
}
```

OR

(ii).What will be the output of the following code
```
void main()
{
int i=1;
for( ; i<=10;i++)
{
cout<<i<<" ";
++i;
}
}
```

| 23. | (i). # include < iostream.h>
void main ( )
{
struct student
{
 int rno;
float per;
};
struct student S;
S.rno=15;
S.per=57.6;
cout << &S->per << S.rno << "\n";
}

OR

(ii). # include < iostream.h>
void swap (int, int);
void main ( )
{ int a=10, b=20;
swap (a, b);
cout << a << b << "\n";
}
void swap (int c, int d)
 { int t;
 t = c;
c = d;
d = t;
}
What will be the output of the following program? | 1 |
| 24. | # include < iostream. h >
float area (float); //statement 1
void main ( )
{ float radius, y;
cin >> radius ;
y = area (radius) ;
cout < < "The area of the circle is " < < y; }
 float area (float r)
 {
return (3.1416 *r* r) ;
 }
What is statement 1 in the above program? | 1 |

25.	Fill in the blanks(any two): (a) A .... is a collection of logically related records. (b) The file opened in ofstream is only available for .... (c) The file opened in ifstream is only available for .... (d) We can open the file using .... function.	1X2
26.	State whether the following statements are true or false(any two): (a) A pointer is an address of the variable. (b) Dereferencing operator (*) is a unary operator. It is different from the multiplication operator (*) which needs two operands. (c) This pointer points to the objects that is currently used to invoke a function.	1X2
27.	Give one word for the following(ANY two): (i) The toolbar containing Save button. _____ (ii) Smallest unit of a spreadsheet. _____ (iii) The cell in which data will be entered. _____ (iv) Shortcut key to exit Writer. _____ (v) Number of scrollbars in Calc window. _____	1X2
	SECTION-B	
28.	(i)What is Cloud Computing? Or (ii)Define Cookies.	2
29.	(i)Define Degree of a relation. OR (ii)What is Cardinality of a Relational Table?	2
30.	Write the SQL query for the following i) To display Empno and empname of employees having salary greater than 45000. ii) To insert the details of an employee having details 106, Raju ,20000 **Employee** 	Empno	empname	Salary
101	Anuj	50000
102	Arijita	40000
103	Hanika	30000
104	Firoz	60000
105	Vijaylakshmi	40000		2
31.	Name the three components of Mail Merge feature in OpenOffice Writer.	2
32.	Illustrate the General Structure of an HTML document.	2

33.	# include < iostream.h >
	#include<string.h>
	 struct student
	{
	char name [20];
	int marks;
	};
	void main ( )
	 { _____// **statement 1**
	cin >> S1. name >> S1. marks;
	cout << S1. name << S1. marks <<"\n";
	S2.marks= S1.marks;
	_____// **statement 2**
	cout << S2. name << S2. marks <<"\n";
	 }
	Complete the above code for the following:
	Statement 1 : create two objects S1,S2.
	Statement 2 : copy the name of Object S1 to name of Object S2 using string function.
		2

34.	(i)Construct AND gate using NOR gate. OR (ii)Construct OR gate using NAND gate	2

35.	Define the following terms(ANY TWO):
	
	    (i) Constructor
	    (j) Function over-riding
	
	    (k) Local Variable
	
	    (l) Global Variable
		2

36.	Create a webpage using the following instructions:
	    (i) largest heading "HTML Images"
	    (ii) paragraph "HTML images are defined with the img tag:"
	    (iii) insert image sample.jpg with alternate text " CS Sample Question paper" having width 100 and height 150
		3

37.	Define the following(any three):
	  i. Key
	  ii. Primary Key
	  iii. Candidate Key
	  iv. Foreign Key
	  v. Alternate Key
		3

38.	(i)Answer the question from (i) to (iv) based on the given below code(assume all necessary header files are included in program):-	4

```
class City
{
        int City_Id;
        char City_Name[30];
protected:
        int City_Population;
public:
        City();
        void Get_Population();
        void New_City();
        void Show_City();
};
class State : public City
{
        int State_Id;
        char State_Name[25];
protected:
        int State_Population;
public:
        State();
        void New_State();
        void Print_State();
};
class Country : private State
{
        int Country_Id;
        char Country_Name[25];
public:
        Country();
        void New_Country();
        void Display_Country();
};
```

(i) Write name of the class whose constructor is invoked first on the creation of a new object of class Country.

(ii) Write name of the data members which are accessible through the object of class Country.

(iii) List name of the members which are accessible through the member function "void New_Country()".

(iv) What will be the size(in bytes) of an object of class Country & State respectively.

OR

(ii)What is a virtual base class? Explain it by taking an example.

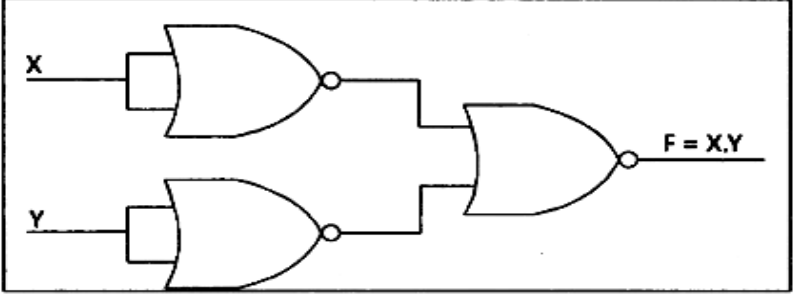| 39.	(i)Write a function sort_bubble to sort array a[] with n elements. Consider the elements of the Array given below. Show the passes after each iteration to sort the elements using Bubble Sort technique. Elements are: 12, 5, 15, 23, 7 OR (ii)Write a program in C++ to call a function which will return the cube of a given number using inline function	4

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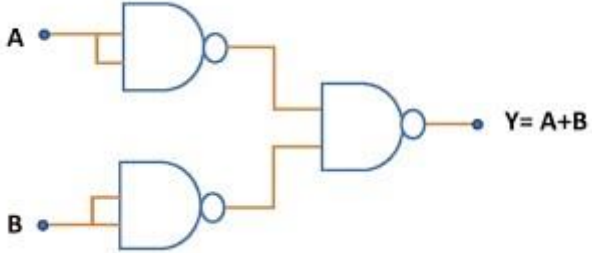**Time 3.00 hrs**   <u>**M.M. 60**</u>
Marking scheme
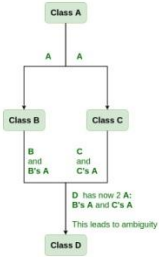
S. No		Marks
SECTION - A		
1.	D OR C	1
2.	A OR C	1
3.	B	1
4.	C	1
5.	A OR C	1
6.	C OR D	1
7.	C OR	1

	D	
8.	A	1
9.	D	1
10.	C	1
11.	A	1
12.	C OR A	1
13.	Face book /LinkedIn/Twitter	1
14.	$(526)_8$ OR (1100011111)	1
15.	Students OR 5 10	1
16.	$(2604)_{10}$ OR 11010	1
17.	Img tag OR Href tag	1
18.	conio.h OR conio.h	1
19.	NAND/NOR	1
20.	Internet Service Provider	1
21.	Are You error	1
22.	1 2 3 OR 1 3 5 7 9	1

23.	57.6 15 OR 10 20	1
24.	Function prototype	1
25.	a. File b. Output c. Input d. Open	1X2
26.	a) True b) True c) True	1X2
27.	(i) Standard (ii) Cell (iii) Active Cell (iv) Ctrl + Q (v) 2	1X2
28.	In Cloud computing, the word 'cloud' signifies Internet. Hence Cloud computing means Internet based computing. Various services, called cloud services are delivered to users through Internet at any time and at any place. OR A cookie is the message given to the web browser by a web server. The message received by the browser is stored in a text file and is sent back to the server each time the browser requests a page from the server. In this manner, cookies help the web server to keep track of the user's activity on a specific website.	2
29.	Degree: The number of attributes in a relation is called the degree of the relation. Cardinality : The number of tuples in a relation is called the cardinality of the relation	2
30.	i) Select Empno , empname From Employee Where salary >45000; ii) Insert into Employee values (106, "Raju", 20000);	2

31.	The three main components of Mail Merge feature are: a. Data Source b. Main Text document c. Merged Document	2

32.	The general structure of an HTML document is given below:
	
	<HTML>
	
	    <HEAD>
	
	    ……
	
	    </HEAD>
	
	    <BODY>
	
	    ….
	
	    </BODY>
	
	</HTML>
		2

33.	Statement 1 : struct student S1,S2; Statement 2: strcpy(S2.name,S1.name);	2
34.	 OR	2

| 35. | Constructor – Special member function of a class without any return type which initializes objects of a class.

Function overriding – It allows to use a function in the child class (derived class) that is already present in Parent class. (ie. have the same name)

Local Variable: A variable declared within the body of a function will be evaluated only within the function. The portion of the program in which a variable is retained in memory is known as the scope of the variable.

Global Variable: A variable that is declared outside any function is known as a global variable. The scope of such a variable extends till the end of the program. These variables are available to all functions which follow their declaration. | 2 |
|---|---|---|
| 36. | `<html>`

`<body>`

`<h1>HTML Images</h1>`

`<p>HTML images are defined with the img tag:</p>`

`<img src="sample.jpg" alt="CS Sample Question Paper" width="100" height="150">`

`</body>`

`</html>` | 3 |
| 37. | i.   Key: A column or a combination of columns which can be used to identify a row (tuple) in a table is called its key. In general, any column or any combination of columns in a table is a key.

ii.   Primary Key: The group of one or more columns used to uniquely identify each row of a relation is called its Primary Key.

iii. Candidate Key: A field or combination of fields which can be | 3 |

15

		used as a primary key of a relation is called a candidate key because it is one of the candidates available to be the primary key of the relation. iv. Foreign Key: A group of one or more columns in a table which is used to set relationship of this table with some other table. v. Alternate Key: A table may have multiple candidate keys. One of these keys become the primary key of the table. All the remaining candidate keys are called alternate keys of the relation.	
38.		(i) class City (1 mark for correct answer) (ii) None (1 mark for correct answer) (iii)Data members: Country_Id, Country_Name[25], State_Population, City_Population Member functions: Display_Country(), New_State(), Print_State(), Get_Population(), New_City(), Show_City() (1 mark for correct answer) (iv) 90 bytes for object of class Country & 63 bytes for object of class State (1/2 mark for each correct answer) OR Virtual base classes are used in virtual inheritance in a way of preventing multiple "instances" of a given class appearing in an inheritance hierarchy when using multiple inheritances. **Need for Virtual Base Classes:** Consider the situation where we have one class **A** . This class **A** is inherited by two other classes **B** and **C**. Both these class are inherited into another in a new class **D** as shown in figure below. As we can see from the figure that data members/function of class **A** are inherited twice to class **D**. One through class **B** and second through class **C**. When any data / function member of class **A** is accessed by an object of class **D**, ambiguity arises as to which data/function member would be called? One inherited through **B** or the other inherited through **C**. This confuses compiler and it displays error.	4

| 39. | void sort_bubble(int a[], int n)
{   int i,j,temp;
   for(i=0;j<n-1;i++)
   {   for(j=0; j<n-1-i;j++)
     { if (a[j] > a[j+1])
       {   temp=a[j];
          a[j]=a[j+1];
          a[j+1]=temp;
        }
      }
    }
     }

     12, 5, 15, 23, 7
     Pass 1: 5, 12, 15, 7, 23
     Pass 2: 5, 12, 7, 15, 23
     Pass 3: 5, 7, 12, 15, 23
     Pass 4: 5, 7, 12, 15, 23
(2 marks for correct code)
(2 marks for passes)

OR

     using namespace std;

     inline long cube(int x)
     {
       return x*x*x;

     } | 4 |

```cpp
int main()
{
  int n;
  cout<<" enter any integer value: ";
  cin>>n;
  cout<<" Cube of "<<n<<" is: "<<cube(n);
}
```