Tsl11CS

(OOOOO)

Standard 11

Time: 3.00 Hours

COMPUTER SCIENCE
Part - I

Marks: 70

I) Answer all the questions.   15x1=15

II) Choose the most appropriate answer from the given four alternatives and write the option code with corresponding answer

1) Which among the following is executed in the order of Inheritance?
   a) constructor   b) Destructor
   c) object   d) Member function

2) Which of the following deals with Procedures, Practices and values?
   a) Virus   b) Computer ethics c) Piracy   d) Programs

3) Which of the following is a user defined data type?
   a) char   b) class   c) float   d) int

4) The smallest individual unit in a program is
   a) Tokens   b) Pseudocode   c) Algorithm   d) Flowchart

5) Which gate is called as the logical invertor?
   a) XNOR   b) AND   c) OR   d) NOT

6) Which is specified by the properties of the given input and the relation between the input and the desired output?
   a) algorithm   b) Definition   c) Specification d) Statement

7) for(int i=2; i<=10; i++) How many times will the loop be executed?
   a) 9   b) 10   c) 11   d) 0

8) Which of the following is the scope resolution operator?
   a) %   b) : :   c) >   d) &

9) cin>>n[4]; to which element does the statment accept the value?
   a) 4   b) 5   c) 3   d) 2

10) A computer network security that monitors and controls incoming and outgoing traffic is :
    a) Firewall   b) Worms   c) Cookies   d) Virus

11) If two strings are equal then strcmp() function returns which value?
    a) 0   b) −1   c) +1   d) =

12) 1011_2 - the Hexadecimal equivalent is :
    a) F   b) D   c) B   d) C

13) int x = 50;
    int main()
    {
        int x = 500;
        cout << : : x;
    }
    The output for the above snippet is :
    a) 500   b) *   c) : : x   d) 5, 0

14) This can be used as alternate to endl command:
    a) \0   b) \t   c) \n   d) \b

15) Which of the following refers to a function having more than one distinct meaning?
    a) Function overloading   b) Member Overloading
    c) Operator Overloading   d) Object Overloading

Part - II

Answer any 6 questions. Q.No. 24 is compulsory.   6x2=12

16) Write the functions of control unit.
17) Define a loop invariant
18) Write a short note on cracking
19) What is Recursion?
20) Write a note on break and continue statement in C++
21) What is function overlaoding? Overloading)
22) Why derived class is called 'Power Packed Class'?
23) Write down the importance of destructor
24) Write a while loop that displays number 5, 10, 15, ... 50

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Part - III

Answer any 6 questions. Q.No. 33 is compulsory.   **6x3=18**

25) Explain about classification of Microprocessors based on the Data width
26) Write a note on User-defined functions
27) What is Decomposition?
28) Write short notes on class access specifier in C++
29) Write about encryption and decryption
30) Write the syntax and purposes of switch statement
31) Write a short note Tamil virtual Academy
32) What is called nested structure? Give example
33) Read the following C++ snippet and answer the questions below.

```
Class student
{
    int m, n;
Public:
    Void add();
    float calc();
}X1,X2;
```

i) Identify the members of the class
ii) What is the size of the objects X1, X2 in memory.

Part - IV

Answer all the questions   **5x5=25**

34) a) Discuss the various Generation of computers.   (OR)
    b) Find 1's complement and 2's complement for the following Decimal number
       i) −96   ii) −125
35) a) Explain the versions of windows operating system   (OR)
    b) What are the types of Errors?
36) a) Explain call by value method with example   (OR)
    b) Mention the difference constructor and destructor
37) a) What is an entry controlled loop? Explain any one of the entry controlled
       loop with syntax and suitable example.   (OR)
    b) Explain scope rules of variables in C++ with example.
38) a) What are the rules for operator overloading?   (OR)
    b) Debug the following C++ program.

```
% include (iostream.h)
# include <conio.h>
class A ( )
{ '
    public ;
    int a1,.a2 : a3;.
void getdata [ ]
{
    a1 = ℓ5; a2 = ℓ3; a3 = ℓ3;}
class B :: public A ( )
{
    PUBLIC
    void func()
    {
        int b1 : b2 : b3;
        A :: getdata [ ];
        b1 = a1;
        b2 = a2;
        a3 = a3;
        cout << b1 << '\t' << b2 << 't\' << b3;}
    void main ( )
    {
    B der ;
    der1 : fun c( ); }
```

Tenkasi District

Half Yearly Examination - 2024

XI Computer Science - Answer key.

Part - I

                                                   MARK

1. a) Constructor   1
2. b) Computer ethics.   1
3. b) class   1
4. a) Tokens   1
5. d) NOT   1
6. c) specification.   1
7. a) 9   1
8. b) : :   1
9. c) 3   1
10. a) Firewall   1
11. a) 0   1
12. c) B   1
13. a) 500   1
14. b) \t   1
15. a) function overloading   1

Part - II

16)   * The control unit controls the flow of data between the CPU, memory and I/o devices
      * It also controls the entire operation of a computer.
                     - 2marks.

17. An Variant for the loop body is known as a loop Invariant
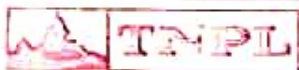   (or)
  The Property of the variables which remains unchanged by the execution of the loop body is called as loop Invariant
                      - 2marks

18. Some one edit a program source so that the code can be exploited or modified
                      —2marks

                     8 4 2 1
                     1 0 1 1

TNPL

19. Recursion are algorithm design techniques to execute the same action repeatedly
(or)
A Function that calls itself is known as recursive function, and, this technique is known as recursion. — 2marks

20. break Statement is a Jump Statement which terminates the execution of loop and the control is transferred to resume a normal execution after the body of the loop. — 1mark

Continue Statement forces the loop to continue or execute next iteration — 1mark

21. The ability of the function to process the message or data in more than one way is called as function overloading
(or)
Overloaded functions refer to a function having more than one distinct meaning have same name but different signatures — 2marks

22. The derived class is a power packed class as it can add additional attributes & methods and thus enhance its functionality — 2marks

23. * A destructor function removes the memory of an object which was allocated by the constructor at time of creating a object. — 2marks

24.
```
i=5
while (i<=50)
{
cout << i;
i+=5;
}
```
— 2 marks
(or) Any program using while loop.

Part - III

25. 8 bit micro processor
16 bit   ,,   ,,
32 bit   ,,   ,,
64 bit   ,,   ''

— 3 marks

21. * we can also define new functions to perform a specific task. These are called as user defined functions. user defined functions are created by the user
* A function can optionally define input parameters that enable callers to pass arguments into the function. A function can also optionally return a value as output
* Function are ideally with a name that clearly describes what the function does.
— 3 marks

27. Decomposition: divide the main algorithm into functions Construct each function independenly of the main algorithm and other functions. Construct the main algorithm using the functions. When we use the functions, it is enough to know the specification of the function. It is not necessary to know how the function is implemented
— 3 marks.

28. Private members — Cannot be accessed from outside the class.
Public members — Accessible from anywhere outside the class but with in a program.
Protected members — Similar to a private member but it provides one additional benefit that they can be accessed in child classes.

TNPL

29. **Encryption:**

* processes that ensure confidentiality that only authorized persons can access the information

* The process of translating the plain text data into random and mangled data.

* used by militaries and governments to facilitate secret communication.

(Any two points)

Decryption:

* Reverse process of converting the cipher text back to plain text   —3 marks

30.
```
Switch (expression)        case constant 2:
{                              Statement (S);
Case Constant 1:               break;
   Statement (S);           default :
   break;                      Statement (S)    —2 marks
}
```

Purpose of Switch Statement.

* It provides an easy way to dispatch execution to different parts of code based on the value of the expression (or)

The Switch Statement replaces multiple if-else sequence.   — 1 mark

31. * with the objectives of spreading Tamil to the entire world through internet, Tamil virtual university was established by Govt. of Tamilnadu

* This organization functions with the name of "Tamil Virtual Academy"

* It offers different courses in Tamil language, culture, heritage. etc.,   —3 marks

32) The structure declared within another structure is called as nested structure.

Example
```
Struct student        float height, weight;
{                     Struct dob        int year;
   int age;              {                }; (Any Example)
                         int date;        } S1;   —3 marks
                         char month [k];
```

33) i) m, n, add (), calc ()

ii) $x_1 = 8$ bytes, $x_2 = 8$ bytes   — 3marks

34) a)   Part – IV

First generation	1940 – 1956 (Vacuum Tubes)
Second ,,	1956 – 1964 (Transistors)
Third ,,	1964 – 1971 (Integrated circuit)
Fourth ,,	1971 – 1980 (Micro processor VLSI)
Fifth ,,	1980 – Till (ULSI)
Sixth ,,	In Future.

Explain merits & Demerits.
                                — 5 marks

35) a) Windows 1.x – 1985 – 16bit Processor   Windows nt – 2000
    ,, 2.x – 1987   Windows 2000 – 2002
    ,, 3.x – 1992   ,, XP – 2001 – 64 bit Processor
    ,, NT – 1993   ,, Vista – 2006
    ,, 95 – 1995 – 32 bit Processor   ,, 7 – 2009
    ,, 98 – 1996   ,, 8 – 2012
                                          ,, 10 – 2015
                            Explain with details – 5marks

b) Explain Error details
   * Syntax Error   * Semantic Error * Run Time Error.
                                — 5 marks

36) a) * copies the value actual parameter into the
   formal Parameter of the function
   * Changes made to formal parameter with in
   the function will have no effect on the actual
   Parameter (written in suitable Example)
                                — 5 marks

b)   Any 5 valid differences
                                — 5 marks

37) a) Entry Controlled loop, the test expression is
   evaluated before the entering into a loop whereas
   In exit controlled loop, the test expression is evaluated
   before exit from the loop
        Explain any one for or while with an example
                                — 5 marks

b) There are four types of scopes in C++. They are;
   Local scope, function scope, File scope, and Class
   scope Explain Each with any one example   — 5 marks

5 points — 5marks

38) a).
1. Precedence & associativity of an operator cannot be changed.

2. No new operators can be created, only existing operators can be overloaded.

3. Cannot redefine the meaning of an operator's procedure. You cannot change how Integers are added. only additional functions can so given to an operator.

4. Overloaded operator cannot have default arguments.

5. When binary operator are overloaded, the left hand object must be an object of the relevant class.

b)

Line no	Error Code	Corrected Code
1	% Include (iostrecm.h) Missing	#Include ⟨iostream⟩ using namespace std;
3	Class A()	Class A
5	Public;	Public:
6	int a₁, a₂ = a₃;	int a1, a2, a3;
7	void getdate []	void getdate ()
9	a1 = L5; a2 = L3; a3 = L3; missing	a1 = 15; a2 = 13; a3 = 13; };
11	class B :: public A	Class B : public A
13	PUBLIC	Public :
16	int b1 : b2 : b3	int b1, b2, b3;
17	A :: getdata [];	A :: getdata ();
20	a3 = a3;	b3 = a3;
21	Cout << b1 << '\t' << b2 << '\t' << b3;	cout << b1 << '\t' << b2 << '\t' << b3;
25	missing der1 : func ()	}; der-func ();
25	der1 : func ();	der-func ();

Rectify any errors (or) write correct code   10 × ½ = 5 marks.

34) b) i)

```
2 | 96
2 | 48 - 0
2 | 24 - 0
2 | 12 - 0
2 | 6 - 0
2 | 3 - 0
    1 - 1
```

Binary number (96)₁₀ = (1100000)₂

8 bit Format ⟹   01100000

1'S complement ⟹   10011111

2's complement ⟹   10100000

(ii)

```
2 | 125
2 | 62 - 1
2 | 31 - 0
2 | 15 - 1
2 | 7 - 1
2 | 3 - 1
    1 - 1
```

Binary number (125)₁₀ = (1111101)₂

8 bit format ⟹ 01111101

1's complement ⟹ 10000010

2's complement ⟹ 10000011