1. Introduction to Computers

SECTION – A

Choose the correct answer

1. First generation computers used
   (a) Vacuum tubes (b) Transistors (c) Integrated circuits (d) Microprocessors
2. Name the volatile memory
   (a) ROM (b) PROM **(c) RAM** (d) EPROM
3. Identify the output device
   (a) Keyboard (b) Memory **(c) Monitor** (d) Mouse
4. Identify the input device
   (a) Printer **(b) Mouse** (c) Plotter (d) Projector
5. …….. Output device is used for printing building plan.
   (a) Thermal printer **(b) Plotter** (c) Dot matrix (d) inkjet printer
6. Which one of the following is used to in ATM machines
   (a) Touch Screen (b) speaker (c) Monitor (d) Printer
7. When a system restarts which type of booting is used.
   (a) Warm booting (b) Cold booting (c) Touch boot (d) Real boot.
8. Expand POST
   (a) Post on self Test (b) Power on Software Test
   (c) Power on Self Test (d) Power on Self Text
9. Which one of the following is the main memory?
   (a) ROM **(b) RAM** (c) Flash drive (d) Hard disk
10. Which generation of computer used IC's?
    (a) First (b) Second **(c) Third** (d) Fourth

SECTION – B

Very Short Answers

1. What is a computer?
2. Distinguish between data and information.
3. What are the components of a CPU?
4. What is the function of an ALU?
5. Write the functions of control unit.
6. What is the function of memory?
7. Differentiate Input and output unit.
8. Distinguish Primary and Secondary memory.

SECTION – C

Short Answers

1. What are the characteristics of a computer?
2. Write the applications of computer.
3. What is an input device? Give two examples.
4. Name any three output devices.
5. Differentiate optical and Laser mouse
6. Write shortnote on impact printer
7. Write the characteristics of sixth generation.
8. Write the significant features of monitor.

SECTION – D

Explain in detail

1. Explain the basic components of a computer with a neat diagram.
2. Discuss the various generations of computers.
3. Explain the following a. Inkjet Printer b. Multimedia projector c. Bar code / QR code Reader

2. Number Systems

SECTION – A

Choose the correct answer:

1. Which refers to the number of bits processed by a computer's CPU?
   A) Byte B) Nibble **C) Word length** D) Bit
2. How many bytes does 1 Kilo Byte contain?
   A) 1000 B) 8 C) 4 **D) 1024**
3. Expansion for ASCII
   A) American School Code for Information Interchange
   B) American Standard Code for Information Interchange
   C) All Standard Code for Information Interchange
   D) American Society Code for Information Interchange
4. 2^50 is referred as
   A) Kilo B) Tera **C) Peta** D) Zetta
5. How many characters can be handled in Binary Coded Decimal System?
   A) 64 B) 255 C) 256 D) 128
6. For 11012 the equalent Hexadecimal equivalent is?
   A) F B) E **C) D** D) B
7. What Is the 1's complement of 00100110?
   A) 00100110 **B) 11011001** C) 11010001 D) 00101001
8. Which amongst this is not an Octal number?
   A) 645 B) 234 **C) 876** D) 123

SECTION – B

Very Short Answers

1. What is data?
2. Write the 1's complement procedure.
3. Convert (46)10 into Binary number
4. We cannot find 1's complement for (28)10 . State reason.
5. List the encoding systems that represents characters in memory.

SECTION – C

Short Answers

1. What is radix of a number system? Give example
2. Write note on binary number system.
3. Convert (150)10 into Binary, then convert that Binary number to Octal
4. Write short note on ISCII
5. Add a) -2210 +1510 b) 2010 +2510

SECTION – D

Explain in detail

1. a) Write the procedure to convert fractional Decimal to Binary
   b) Convert (98.46)10 to Binary

2. Find 1's Complement and 2's Complement for the following Decimal number
   a) -98 b) -135
3. A) Add $1101010_2 + 101101_2$ b) Subtract $1101011_2 - 111010_2$

2. Boolean Algebra

SECTION – A

Choose the correct answer

1. Which is a basic electronic circuit which operates on one or more signals?
   (A) Boolean algebra **(B) Gate** (C) Fundamental gates (D) Derived gates
2. Which gate is called as the logical inverter?
   (A) AND (B) OR **(C) NOT** (D) XNOR
3. A + A = ?
   (A) A (B) O (C) 1 (D) A
4. NOR is a combination of ?
   (A) NOT(OR) (B)NOT(AND) (C) NOT(NOT) (D) NOT(NOR)
5. NAND is called as …… Gates
   (A) Fundamental Gate **(B) Derived Gate** (C) Logical Gate (D) Universal gate

SECTION – B

Very Short Answers

1. What is Boolean Algebra?
2. Write a short note on NAND Gate.
3. Draw the truth table for XOR gate.
4. Write the associative laws?
5. What are derived gates?

SECTION – C

Short Answers

1. Write the truth table of fundamental gates.
2. Write a short note on XNOR gate.
3. Reason out why the NAND an NOR are called universal gates?
4. Give the truth table of XOR gate.
5. Write the De Morgan's law.

SECTION – D

Explain in detail

1. Explain the fundamental gates with expression and truth table.
2. How AND and OR can be realized using NAND and NOR gate.
3. Explain the Derived gates with expression and truth table.

3. Computer Organisation

SECTION – A

Choose the correct answer

1. Which of the following is said to be the brain of a computer?
   (a) Input devices (b) Output devices (c) Memory device **(d)Microprocessor**
2. Which of the following is not the part of a microprocessor unit?
   (a) ALU (b) Control unit **(c) Cache memory** (d) register
3. How many bits constitute a word?
   (a) 8 (b) 16
   (c) 32 **(d) determined by the processor used.**

4. Which of the following device identifies the location when address is placed in the memory address register?
   (a) Locator (b) encoder **(c) decoder** (d) multiplexer
5. Which of the following is a CISC processor?
   (a) Intel P6 (b) AMD K6 **(c) Pentium III** (d) Pentium IV
6. Which is the fastest memory?
   a) Hard disk (b) Main memory **(c) Cache memory** (d) Blue-Ray disc
7. How many memory locations are identified by a processor with 8 bits address bus at a time?
   (a) 28 (b) 1024 **(c) 256** (d) 8000
8. What is the capacity of 12cm diameter DVD with single sided and single layer?
   (a) 4.7 GB (b) 5.5 GB (c) 7.8GB (d) 2.2 GB
9. What is the smallest size of data represented in a CD
   (a) blocks (b) sectors **(c) pits** (d) tracks
10. Display devices are connected to the computer through.
    (a) USB port (b) Ps/2 port (c) SCSI port **(VGA connector**

SECTION – B

Very Short Answers

(1) What are the parameters which influence the characteristics of a microprocessor?
(2) What is an instruction?
(3) What is a program counter?
(4) What is HDMI?
(5) Which source is used to erase the content of a EPROM?

SECTION-C

Short Answers

(1) Differentiate Computer Organisation from Computer Architecture.
(2) Classify the microprocessor based on the size of the data.
(3) Write down the classifications of microprocessors based on the instruction set.
(4) Differentiate PROM and EPROM.
(5) Write down the interfaces and ports available in a computer.
(6) Differentiate CD and DVD
(7) How will you differentiate a flash memory and an EEPROM?

SECTION – D

Explain in detail

(1) Explain the characteristics of a microprocessor.
(2) How the read and write operations are performed by a processor? Explain.
(3) Arrange the memory devices in ascending order based on the access time.
(4) Explain the types of ROM.

4. Theoretical concepts of Operating System

SECTION – A

Choose the correct answer

1. Operating system is a
   A)Application Software B) Hardware **C) System Software** D) Component
2. Identify the usage of Operating Systems
   A) Easy interaction between the human and computer

B) Controlling input & output Devices

C) Managing use of main memory

D) All the above

3. Which of the following is not a function of an Operating System?

A) Process Management B) Memory Management

C) Security management **D) Complier**

4. Environment Which of the following OS is a Commercially licensed Operating system?

A) Windows B) FEDORA C) UBUNTU D) REDHAT

5. Which of the following Operating systems support Mobile Devices?

A) Windows 7 B) Linux C) BOSS **D) iOS**

6. File Management manages

A) Files B) Folders C) Directory systems **D) All the Above**

7. Operating System Interactive provides

A) Graphics User Interface (GUI) B) Data Distribution

C) Security Management D) Real Time Processing

8. An example for single task operating system is

A) Linux B) Windows **C) MS-DOS** D) Unix

9. The File management system used by Linux is

A) ext2 B) NTFS C) FAT D) NFTS

SECTION-B

Very Short Answers

1) List out any two uses of Operating System?
2) What is multi-user Operating system?
3) What is a GUI?
4) What are the security management features available in Operating System ?
5) What is multi-processing?
6) What are the different Operating Systems used in computer?

SECTION-C

Short Answers

1) What are the advantages and disadvantages of Time-sharing features?
2) List out the key features of Operating system
3) Write a note on Multiprocessing

SECTION – D

Explain in detail

1) Explain the concept of a Distributed Operating System along with its advantages.
2) List out the points to be noted while creating a user interface for an Operating system.
3) Explain the process management algorithms in Operating System.

5. Working with Windows Operating System

SECTION – A

Choose the correct answer

1) From the options given below, choose the operations managed by the operating system.

(a) Memory (b) Processes (c) Disks and I/O device **(d) all of the above**

2) Which is the default folder for many Windows Applications to save your file?

(a) My Document (b) My Pictures (c) Documents and Settings (d) My Computer

3) Under which of the following OS, the option Shift + Delete will permanently deletes a file or folder?
(a) Windows 7 (b) MS-DOS (c) Linux (d) Android OS

4) What is the meaning of "Hibernate" in Windows XP/Windows 7?
(a) Restart the Computer in safe mode
(b) Restart the Computer in hibernate mode
(c) Shutdown the Computer terminating all the running applications
(d) Shutdown the Computer without closing the running applications

5) The shortcut key used to rename a file in windows
(a) F2 (b) F4 (c) F5 (d) F6

SECTION-B

Very Short Answers

1. What is known as Multitasking?
2. What are called standard icons?
3. Differentiate Files and Folders.
4. Differentiate Save and save As option.
5. How will you Rename a File?

SECTION-C

Short Answers

1. What are the functions of Windows Operating system?
2. Write a note on Recycle bin.
3. Write a note on the elements of a window.
4. Write the two ways to create a new folder.
5. Differentiate copy and move

SECTION – D

Explain in detail

1. Explain the versions of Windows Operating System.
2. Explain the different ways of finding a file or Folder.
3. Write the procedure to create shortcut in Windows OS.

6. Specification and Abstraction

SECTION – A

Choose the correct answer

1. Which of the following activities is algorithmic in nature?
(a) Assemble a bicycle. (b) Describe a bicycle.
(c) Label the parts of a bicycle. (d) Explain how a bicycle works.
2. Which of the following activities is not algorithmic in nature?
(a) Multiply two numbers. (b) Walk in the park.
(c) Draw a kolam. **(d) Swaping of two numbers.**
3. Omitting details inessential to the task and representing only the essential features of the task is known as
(a) specification **(b) abstraction** (c) composition (d) decomposition
4. Stating the input property and the input-output relation a problem is known
(a) specification (b) statement (c) algorithm (d) definition
5. Ensuring the input-output relation is

(a) the responsibility of the algorithm and the right of the user.

(b) the responsibility of the user and the right of the algorithm.

(c) the responsibility of the algorithm but not the right of the user.

(d) the responsibility of both the user and the algorithm.

6. If i = 5 before the assignment i := i-1 after the assignment, the value of i i

   (a) 5 **(b) 4** (c) 3 (d) 2

7. If 0 < i before the assignment i := i-1 after the assignment, we can conclude that

   (a) 0 < i **(b) 0 ≤ i** (c) i=0 (d) 0>=i

SECTION-B

Very Short Answers

1. Define an algorithm.
2. Distinguish between an algorithm and a process.
3. Initially,

   farmer, goat, grass, wolf = L, L, L, L

   and the farmer crosses the river with goat. Model the action with an assignment statement.
4. Specify a function to find the minimum of two numbers.
5. If √2 = 1.414, and the square_root() function returns -1.414, does it violate the following specification?

   -- square_root (x)

   -- inputs: x is a real number , x ≥ 0

   -- outputs: y is a real number such that y2=x

SECTION - C

Short Answers

1. When do you say that a problem is algorithmic in nature?
2. What is the format of the specification of an algorithm?
3. What is abstraction?
4. How is state represented in algorithms?
5. What is the form and meaning of assignment statement?
6. What is the difference between assignment operator and equality operator?

SECTION – D

Explain in detail

1. Write the specification of an algorithm hypotenuse whose inputs are the lengths of the two shorter sides of a right-angled triangle, and the output is the length of the third side.
2. Suppose you want to solve the quadratic equation ax2 + bx + c = 0 by an algorithm.

   quadratic_solve (a, b, c)

   --inputs : ?

   --outputs: ?

   You intend to use the formula and you are prepared to handle only real number roots. Write a suitable specification.

   X = — b ± √b2 — 4ac----------2a
3. Exchange the contents: Given two glasses marked A and B. Glass A is full of apple drink and glass B is full of grape drink. For exchanging the contents of glasses A and B, represent the state by suitable variables, and write the specification of the algorithm.

7. Composition and Decomposition

SECTION – A

Choose the correct answer

1. Suppose u, v = 10 ,5 before the assignment. What are the values of u and v after the sequence of assignments? 1 u := v 2 v := u

   a) u, v = 5 ,5 (b) u, v = 10 ,5 (c) u, v = 5 ,10 **(d) u, v = 10 ,10**

2. Which of the following properties is true after the assignment at line 3?

   1 -- i, j = 0
   2 i, j := i+1, j -1
   3 --?

   (a) i+j >0 (b) i+j < 0 **(c) i+j =0** (d) I = j 3.

3. If C1 is false and C2 is true, the compound statement

   1 if C1
   2 S1
   3 else
   4 if C2
   5 S2
   6 else
   7 S3

   (a) S1 **(b) S2** (c) S3 (d) none 4.

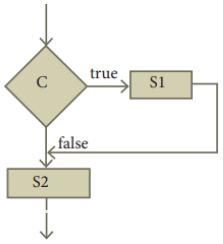
4. If C is false just before the loop, the control flows through 1 S1 2 while C 3 S2 4 S3

   1 S1
   2 while C
   3 S2
   4 S3

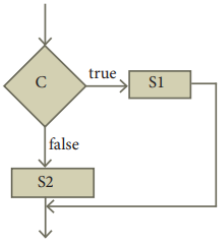
   (a) S1 ; S3 (b) S1 ; S2 ; S3
   (c) S1 ; S2 ; S2 ; S3 (d) S1 ; S2 ; S2 ; S2 ; S3

5. If C is true, S1 is executed in both the flowcharts, but S2 is executed in

   (1)



   (2)



   (a) (1) only (b) (2) only
   (c) both (1) and (2) **(d) neither (1) nor (2)**

6. How many times the loop is iterated?

   i := 0
   while I ≠ 5
   i := i + 1

   (a) 4 **(b) 5** (c) 6 (d) 0

SECTION – B

Very Short Answers

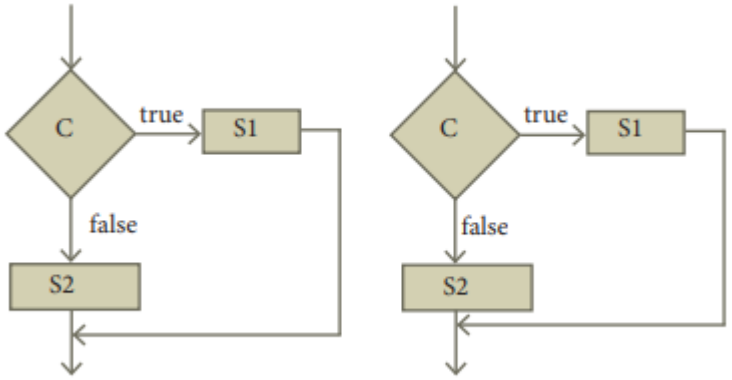
1. Distinguish between a condition and a statement.
2. Draw a flowchart for conditional statement.

3. Both conditional statement and iterative statement have a condition and a statement. How do they differ?
4. What is the difference between an algorithm and a program?
5. Why is function an abstraction?
6. How do we refine a statement?

SECTION – C

Short Answers

1. For the given two flowcharts write the pseudo code.



2. If C is false in line 2, trace the control flow in this algorithm.

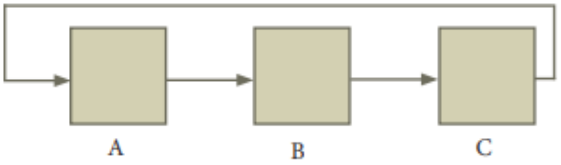
```
1  S1
2  -- C is false
3  if C
4     S2
5  else
6     S3
7  S4
```

3. What is case analysis?
4. Draw a flowchart for -3case analysis using alternative statements.
5. Define a function to double a number in two different ways: (1) n + n, (2) 2 x n

SECTION – D

Explain in detail

1. Exchange the contents: Given two glasses marked A and B. Glass A is full of apple drink and glass B is full of grape drink. Write the specification for exchanging the contents of glasses A and B, and write a sequence of assignments to satisfy the specification.
2. Circulate the contents: Write the specification and construct an algorithm to circulate the contents of the variables A, B and C as shown below: The arrows indicate that B gets the value of A, C gets the value of B and A gets the value of C.



3. Decanting problem. You are given three bottles of capacities 5 ,8 and 3 litres. The 8L bottle is filled with oil, while the other two are empty. Divide the oil in 8L bottle into two equal quantities. Represent the state of the process by appropriate variables. What are the initial and final states of the process? Model the decanting of oil from one bottle to another by assignment. Write a sequence of assignments to achieve the final state.

1. 4. Trace the step-by-step execution of the algorithm for factorial(4).

factorial(n)

--inputs : n is an integer , n ≥ 0

--outputs : f = n!

f, I := 1 ,1

while i ≤ n

f, I := f × I, i+1

8. Iteration and recursion

SECTION – A Choose the correct answer

1. A loop invariant need not be true
   (a) at the start of the loop.
   (b) at the start of each iteration
   (c) at the end of each iteration
   (d) at the start of the algorithm
2. We wish to cover a chessboard with dominoes, the number of black squares and the number of white squares covered by dominoes, respectively, placing a domino can be modeled by
   (a) b := b + 2 (b) w := w + 2 (c) b, w := b+1, w+1 **(d) b := w**
3. If m x a + n x b is an invariant for the assignment a, b : = a + 8, b + 7, the values of m and n are
   (a) m = 8, n = 7 **(b) m = 7, n = -8** (c) m = 7, n = 8 (d) m = 8, n = -7
4. Which of the following is not an invariant of the assignment? M, n := m+2, n+3
   (a) m mod 2 (b) n mod 3 (c) 3 X m – 2 X n **(d) 2 X m – 3 X n**
5. If Fibonacci number is defined recursively as

$$F(n)=\begin{cases}0 & n=0\\ 1 & n=1\\ F(n-1)+F(n-2) & \text{otherwise}\end{cases}$$

   to evaluate F(4), how many times F() is applied?
   (a) 3 (b) 4 (c) 8 **(d) 9**
6. Using this recursive definition{ a n= 1 if n = 0 a x an -1 otherwise how many multiplications are needed to calculate a10?

$$a^n=\begin{cases}1 & \text{if } n=0\\ a \times a^{n-1} & \text{otherwise}\end{cases}$$

   (a) 11 **(b) 10** (c) 9 d) 8

SECTION – B

Very Short Answers

1. What is an invariant?
2. Define a loop invariant.
3. Does testing the loop condition affect the loop invariant? Why?
4. What is the relationship between loop invariant, loop condition and the input- output recursively
5. What is recursive problem solving?
6. Define factorial of a natural number recursively.

SECTION – C

Short Answers

1. There are 7 tumblers on a table, all standing upside down. You are allowed to turn any 2 tumblers simultaneously in one move. Is it possible to reach a situation when all the tumblers are right side up? (Hint: The parity of the number of upside down tumblers is invariant.)
2. A knockout tournament is a series of games. Two players compete in each game; the loser is knocked out (i.e. does not play any more), the winner carries on. The winner of the tournament is the player that is left after all other players have been knocked out. Suppose there are 1234 players in a tournament. How many games are played before the tournament winner is decided?
3. King Vikramaditya has two magic swords. With one, he can cut off 19 heads of a dragon, but after that the dragon grows 13 heads. With the other sword, he can cut off 7 heads, but 22 new heads grow. If all heads are cut off, the dragon dies. If the dragon has originally 1000 heads, can it ever die? (Hint:The number of heads mod 3 is invariant.)

SECTION – D

Explain in detail

1. Assume an 8 × 8 chessboard with the usual coloring. "Recoloring" operation changes the color of all squares of a row or a column. You can recolor re-peatedly. The goal is to attain just one black square. Show that you cannot achieve the goal. (Hint: If a row or column has b black squares, it changes by (|8 – b) – b|).
2. Power can also be defined recursively

$$a^n = \begin{cases} 1 & \text{if } n = 0 \\ a \times a^{n-1} & \text{if } n \text{ is odd} \\ a^{n/2} \times a^{n/2} & \text{if } n \text{ is even} \end{cases}$$

   Construct a recursive algorithm using this definition. How many multiplications are needed to calculate a10?
3. A single-square-covered board is a board of 2n x 2n squares in which one square is covered with a single square tile. Show that it is possible to cover this board with triominoes without overlap.

9. Introduction to C++

SECTION – A

Choose the correct answer:

1. Who developed C++?
   (a) Charles Babbage **(b) Bjarne Stroustrup**
   (c) Billgates (d) Sundar Pichai
2. What was the original name given to C++?
   (a) CPP (b) Advanced C **(c) C with Classes** (d) Class with C
3. Who coined C++?
   (a) Rick Mascitti (b) Rick Bjarne (c) Bill Gates (d) Dennis Ritchie
4. The smallest individual unit in a program is:
   (a) Program (b) Algorithm (c) Flowchart **(d) Tokens**
5. Which of the following operator is extraction operator in C++?
   (a) >> (b) << (c) <> (d) ^^
6. Which of the following statements is not true?
   (a) Keywords are the reserved words which convey specific meaning to the C++ compiler.
   (b) Reserved words or keywords can be used as an identifier name.
   (c) An integer constant must have at least one digit without a decimal point.
   (d) Exponent form of real constants consist of two parts

7. Which of the following is a valid string literal?
   (a) 'A' (b) 'Welcome' (c) 1232 **(d) "1232"**
8. A program written in high level language is called as
   (a) Object code **(b) Source code** (c) Executable code (d) All the above
9. Assume a=5, b=6; what will be result of a&b?
   (a) 4 (b) 5 (c) 1 (d) 0
10. Which of the following is called as compile time operators?
    (a) size of (b) pointer (c) virtual (d) this

SECTION-B

Very Short Answers

1. What is meant by a token? Name the token available in C++.
2. What are keywords? Can keywords be used as identifiers?
3. The following constants are of which type?
   (i) 39 (ii) 032 (iii) 0XCAFE (iv) 04.14
4. Write the following real constants into the exponent form:
   (i) 23.197 (ii) 7.214 (iii) 0.00005 (iv) 0.319
5. Assume n=10; what will be result of n++ and --n;?
6. Match the following

A	B
(a) Modulus	(1) Tokens
(b) Separators	(2) Remainder of a division
(c) Stream extraction	(3) Punctuators
(d) Lexical Units	(4) get from

SECTION-C

Short Answers

1. Describe the differences between keywords and identifiers?
2. Is C++ case sensitive? What is meant by the term "case sensitive"?
3. Differentiate "=" and "==".
4. What is the use of a header file?
5. Why is main function special?

SECTION - D

Explain in detail

1. Write about Binary operators used in C++.
2. What are the types of Errors?

1. What are modifiers? What is the use of modifiers?
2. What is wrong with the following C++ statement: long float x;
3. What is a variable ? Why is a variable called symblolic variable?
4. What do you mean by dynamic initialization of a variable? Give an exmple.
5. What is wrong with the following statement? const int x; What is meant by type conversion?
6. How implicit conversion is different from explicit conversion?
7. What is the difference between endl and \n?

8. What is the use of references?
9. What is the use of setprecision ( ) ?

LESSON - 9 PART-II

SECTION – A

A Choose the correct answer

1. How many categories of data types are available in C++?
   (a) 5 (b) 4 **(c) 3** (d) 2
2. Which of the following data types is not a fundamental type?
   (a) signed (b) int (c) float (d) char
3. What will be the result of following statement? char ch= 'B'; cout << (int) ch;
   (a) B (b) b (c) 65 **(d) 66**
4. Which of the character is used as suffix to indicate a floating point value?
   (a) F (b) C (c) L (d) D
5. How many bytes of memory is allocated for the following variable declaration if you are using Dev C++?
   short int x;
   (a) 2 (b) 4 (c) 6 (d) 8
6. What is the output of the following snippet? char ch = 'A'; ch = ch + 1;
   (a) B (b) A1 (c) F (d) 1A
7. Which of the following is not a data type modifier?
   (a) signed **(b) int** (c) long (d) short
8. Which of the following operator returns the size of the data type?
   (a) sizeof( ) (b) int ( ) (c) long ( ) (d) double ( )
9. Which operator is used to access reference of a variable?
   (a) $ (b) # **(c) &** (d) !
10. This can be used as alternate to endl command:
    (a) \t (b) \b (c) \0 **(d) \n**

SECTION-B

Very Short Answers

1. Write a short note on const keyword with an example.
2. What is the use of setw( ) format manipulator?
3. Why is char often treated as integer data type?
4. What is a reference variable? What is its use?
5. Consider the following C++ statement. Are they equivalent? char ch = 67; char ch = 'C';
6. What is the difference between 56L and 56?
7. Determine which of the following are valid constant? And specify their type.
   (i) 0.5 (ii) 'Name' (iii) '\t' (iv) 27,822
8. Suppose x and y are two double type variable that you want add as integer and assign to an integer variable. Construct a C++ statement to do the above.
9. What will be the result of following if num=6 initially.
   (a) cout << num;
   (b) cout << (num==5);
10. Which of the following two statements are valid? Why? Also write their result.
    (i) int a; a = 3,014; (ii) int a; a=(3,014);

SECTION-C

Short Answers

1. What are arithmetic operators in C++? Differentiate unary and binary arithmetic operators. Give example for each of them.
2. How relational operators and logical operators are related to one another?
3. Evaluate the following C++ expressions where x, y, z are integers and m, n are floating point numbers. The value of x = 5, y = 4 and m=2.5;
   (i) n = x + y / x; (ii) z = m * x + y; (iii) z *= x * m + x;

1. What is meant by literals? How many types of integer literals are available in C++?
2. What kind of constants are following?
   i) 26 ii) 015 iii) 0xF iv) 014.9
3. What is character constant in C++?
4. How are non graphic characters represented in C++?
5. Write the following real constants into exponent form:
   i) 32.179 ii) 8.124 iii) 0.00007
6. Write the following real constants in fractional form:
   i) 0.23E4 ii) 0.517E-3 iii) 0.5E-5
7. What is the significance of null (\0) character in a string?

8. What is the use of operators?
9. What are binary operators? Give examples of arithmetic binary operators.
10. What does the modulus operator % do?
11. What will be the result of 8.5 % 2?
12. Given that i = 8, j = 10, k = 8, What will be result of the following expressions?
    (i) i < k (ii) i < j (iii) i > = k (iv) i = = j (v) j ! = k
13. What will be the order of evaluation for the following expressions?
    (i) i + 3 >= j - 9 (ii) a +10 < p - 3 + 2 q
14. Write an expression involving a logical operator to test, if marks are 75 and grade is 'A'.

15. What do you mean by fundemantal data types?
16. The data type char is used to represent characters. then why is it often termed as an integer type?
17. What is the advantage of floating point numbers over integers?
18. The data type double is another floating point type. Why is it treated as a distinct data type?
19. What is the use of void data type?

20. What are modifiers? What is the use of modifiers?
21. What is wrong with the following C++ statement:
    long float x;
22. What is a variable ? Why is a variable called symblolic variable?
23. What do you mean by dynamic initialization of a variable? Give an exmple.
24. What is wrong with the following statement?
    const int x

1. What is meant by type conversion?
2. How implicit conversion is different from explicit conversion?
3. What is the difference between endl and \n?

4. What is the use of references?
5. What is the use of setprecision ( ) ?

10. Flow of Control

SECTION – A

Choose the correct answer

1. What is the alternate name of null statement?
   (A) No statement **(B) Empty statement** (C) Void statement (D) Zero statement
2. The set of statements that are executed again and again in iteration is called as:
   (A) condition (B) loop (C) statement **(D) body of loop**
3. The multi way branch statement:
   (A) if **(B) switch** (C) if … else (D) for
4. How many types of iteration statements?
   (A) 2 **(B) 3** (C) 4 (D)5
5. In C++, the group of statements should be enclosed within:
   (A) { } (B) [ ] (C) ( ) (D) < >
6. How many times the following loop will execute? For (int i=0; i<10; i++)
   (A) 0 **(B) 10** (C) 9 S (D) 11 7.
7. Which of the following is the exit control loop?
   (A) for (B) while **(C) do…while** (D) if…else
8. Identify the odd one from the keywords of jump statements:
   (A) break **(B) switch** (C) goto (D) continue
9. Which of the following is called entry control loop?
   (A) do-while (B) switch **(C) while** (D) if-else
10. A loop that contains another loop inside its body:
    (A) Nested loop (B) Inner loop (C) Inline loop (D) Nesting of loop

SECTION – B

Very Short Answers

1. What is a null statement and compound statement?
2. What is selection statement? Write it's types?
3. Correct the following code segment:

```
if (x=1)
  p= 100;
else
  p = 10;
```

4. What will be the output of the following code:

```
int year;
cin >> year;
    if (year % 100 == 0)
            if ( year % 400 == 0)
                    cout << "Leap";
else
     cout << "Not Leap year";
```

   If the input given is (i) 2000 (ii) 2003 (iii) 2010?
5. What is the output of the following code?

```
for (int i=2; i<=10 ; i+=2)
    cout << I;
```

6. Write a for loop that displays the number from 21 to 30.
7. Write a while loop that displays numbers 2, 4, 6, 8…….20.
8. Compare if..else and ?:(ternary) operator.

SECTION – C

Short Answers

1. Convert the following if-else to a single conditional statement:

```
if (x >= 10)
    a = m + 5;
else
    a = m;
```

2. Rewrite the following code so that it is functional: v = 5; do; { total += v; cout << total; while v <= 10
3. Write a C++ program to print multiplication table of a given number.
4. Write the syntax and purpose of switch statement.
5. Write a short program to print following series: (a) 1 4 7 10…… 40

SECTION – D

Explain in detail

1. Explain control statement with suitable example.
2. What is an entry control loop? Explain any one of the entry-controlled loop with suitable example.
3. Write a program to find the LCM and GCD of two numbers.
4. Write programs to find the sum of the following series:

(a) $x - \frac{x^2}{2!} + \frac{x^3}{3!} - \frac{x^4}{4!} + \frac{x^5}{5!} - \frac{x^6}{6!}$

(b) $x + \frac{x^2}{2} + \frac{x^3}{3} + \ldots + \frac{x^n}{n}$

5. Write a program to find sum of the series

$S = 1 + x + x^2 + \ldots + x^n$

11. Function

SECTION – A

Choose the correct answer

1. Which of the following header file defines the standard I/O predefined functions ?

   A) stdio.h B) math.h C) string.h D) ctype.h

2. Which function is used to check whether a character is alphanumeric or not.

   A) isalpha() B) isdigit() **C) isalnum()** D) islower()

3. Which function begins the program execution ?

   A) isalpha() B) isdigit() **C) main()** D) islower()

4. Which of the following function is with a return value and without any argument ?

   A) x=display(int, int) **B) x=display()** C) y=display(float) D) display(int)

5. Which is return data type of the function prototype of add(int, int); ?

   A) int B) float C) char D) double

6. Which of the following is the scope operator ?

   A) > B) & C) % **D) ::**

SECTION - B

Very Short Answers

1. Define Functions.
2. Write about strlen() function.
3. What are importance of void data type.
4. What is Parameter and list its types?
5. Write a note on Local Scope.

SECTION-C

Short Answers

1. What is Built-in functions ?
2. What is the difference between isupper() and toupper() functions ?
3. Write about strcmp() function.
4. Write short note on pow() function in C++.
5. What are the information the prototype provides to the compiler ?
6. What is default arguments ? Give example.

SECTION - D

Explain in detail

1. Explain Call by value method with suitable example.
2. What is Recursion? Write a program to find the factorial of the given number using recursion.
3. What are the different forms of function return? Explain with example.
4. Explain scope of variable with example. Write a program to accept any integer number and reverse it.

12. Arrays and Structures

SECTION – A

Choose the correct answer

1. Which of the following is the collection of variables of the same type that can referenced by a common name ?

   A) int B) float **C) Array** D) class

2. int age[]={6,90,20,18,2}; How many elements are there in this array?

   A) 2 **B) 5** C) 6 D) 4

3. cin>>n[3]; To which element does this statement accept the value?

   A) 2 B) 3 **C) 4** D)5

4. By default, a string ends with which character?

   A) \0 B) \t C) \n D)\b

5. Structure definition is terminated by

   (A) : (B) } **(C) ;** (D)::

6. What will happen when the structure is declared?

   (A) it will not allocate any memory (B) it will be declared and initialized

   (C) it will allocate the memory **(D) it will be only declared**

7. A structure declaration is given below.

   ```
   struct Time
   {
   int hours;
   int minutes;
   int seconds;
   }t;
   ```

   Using above declaration which of the following refers to seconds.

(A) Time.seconds (B) Time::seconds (C)seconds **(D) t. seconds**

8. Which of the following is a properly defined structure?
   (A) struct {int num;} (B) struct sum {int num;}
   (C) struct sum int sum; **(D) struct sum {int num;};**
9. A structure declaration is given below.

```
Struct employee
{
int empno;
char ename[10];
}e[5];
```

   Using above declaration which of the following statement is correct.
   (a) cout<<e[0].empno<<e[0].ename; (b) cout<<e[0].empno<<ename;
   (c) cout<<e[0]->empno<<e[0]->ename; (d) cout<<e.empno<<e.ename;
10. When accessing a structure member ,the identifier to the left of the dot operator is the name of
    (a) structure variable (b) structure tag
    (c) structure member (d) structure function

SECTION – B

Very Short Answers

1. What is Traversal in an Array?
2. What is Strings?
3. What is the syntax to declare two – dimensional array.
4. Define structure. What is its use?
5. What is the error in the following structure definition.
   Struct employee{ in teno;char ename[20];char dept;} Employee e1,e2;

SECTION – C

Short Answers

1. Define an Array ? What are the types?
2. Write note an Array of strings.
3. The following code sums up the total of all students name starting with ‘S’ and display it.
   Fill in the blanks with required statements.

```
Struct student {int exam no,lang,eng,phy,che,mat,csc,total;char name[15];};
int main()
{
student s[20];
for(int i=0;i<20;i++)
{ …….. //accept student details
for(int i=0;i<20;i++)
{ …….. //check for name starts with letter “S”
……. // display the detail of the checked name
}
return 0;
}
```

4. How to access members of a structure? Give example.
5. What is called anonymous structure. Give an example.

SECTION - D

Explain in detail

1. Write a C++ program to find the difference between two matrix.
2. Write a C++ program to add two distances using the following structure definition.

```
struct Distance{
int feet;
float inch;
}d1 , d2, sum;
```

3. Write the output of the following.

```
#include<iostream>
#include<stdio>
#include <string>
#include<conio>
using namespace std;
struct books {
char name[20], author[20];
} a[50];
int main()
{
clrscr();
cout<< "Details of Book No " << 1 << "\n";
cout<< "------------------------\n";
cout<< "Book Name :"<<strcpy(a[0].name,"Programming ")<<endl;
cout<< "Book Author :"<<strcpy(a[0].author,"Dromy")<<endl;
cout<< "\nDetails of Book No " << 2 << "\n";
cout<< "------------------------\n";
cout<< "Book Name :"<<strcpy(a[1].name,"C++programming" )<<endl;
cout<< "Book Author :"<<strcpy(a[1].author,"BjarneStroustrup ")<<endl;
cout<<"\n\n";
cout<< "================================================\n";
cout<< " S.No\t| Book Name\t|author\n";
cout<< "================================================";
for (int i = 0; i < 2; i++) {
cout<< "\n " << i + 1 << "\t|" << a[i].name << "\t| " << a[i].author;
}
cout<< "\n================================================";
return 0;
}
```

4. Debug the error in the following program.

```
#include <iostream>
#include <string.h>
using namespace std;
struct student
{
 introll_no;
 char name[10];
```

```
 long phone_number;
};
int main(){
student p1 = {1,"Brown",123443},p2;
p2.roll_no = 2;
strcpy(p2.name ,"Sam");
p2.phone_number = 1234567822;
cout<< "First Student" <<endl;
cout<< "roll no : " << p1.roll_no <<endl<< "name : " << p1.name <<endl;
cout<< "phone no : " << p1.phone_number <<endl;
cout<< "Second Student" <<endl;
cout<< "roll no : " << p2.roll_no <<endl<< "name : " << p2.name <<endl;
cout<< "phone no : " << p2.phone_number <<endl;
return 0;
}
```

13. Introduction to Object Oriented Programming Techniques

SECTION – A

Choose the correct answer

1. The term is used to describe a programming approach based on classes and objects is
   (A) OOP (B) POP (C) ADT (D)SOP
2. The paradigm which aims more at procedures.
   (A) Object Oriented Programming **(B)Procedural programming**
   (C) Modular programming (D)Structural programming
3. Which of the following is a user defined data type?
   (A) class (B) float (C) int (D) object
4. The identifiable entity with some characteristics and behaviour is.
   (A) class **(B) object** (C) structure (D) member
5. The mechanism by which the data and functions are bound together into a single unit is known as
   (A) Inheritance **(B) Encapsulation** (C) Polymorphism (D) Abstraction
6. Insulation of the data from direct access by the program is called as
   (A) Data hiding (B) Encapsulation (C) Polymorphism (D) Abstraction
7. Which of the following concept encapsulate all the essential properties of the object that are to be created?
   (A) class (B) Encapsulation (C) Polymorphism **(D) Abstraction**
8. Which of the following is the most important advantage of inheritance?
   (A) data hiding **(B) code reusability** (C) code modification (D) accessibility
9. "Write once and use it multiple time" can be achieved by
   (A) redundancy **(B) reusability** (C) modification (D) composition
10. Which of the following supports the transitive nature of data?
    (A) Inheritance (B) Encapsulation (C) Polymorphism (D) Abstraction

SECTION – B

Very short answer

1. How is modular programming different from procedural programming paradigm?
2. Differentiate classes and objects.

3. What is polymorphism?
4. How is encapsulation and abstraction are interrelated?
5. Write the disadvantages of OOP.

SECTION-C

Short Answers

1. What is paradigm ? Mention the different types of paradigm.
2. Write a note on the features of procedural programming.
3. List some of the features of modular programming
4. What do you mean by modularization and software reuse?
5. Define information hiding.

SECTION-D

Explain in detail

1. Write the differences between Object Oriented Programming and procedural programming
2. What are the advanatges of OOPs?
3. Write a note on the basic concepts that suppors OOps?

14. Classes and objects

Section-A

Choose the correct answer

1. The variables declared inside the class are known as
   (A) data (B) inline **(C) method** (D) attributes
2. Which of the following statements about member functions are True or False?
   i) A member function can call another member function directly with using the dot operator.
   ii) Member function can access the private data of the class.
   (A) i)True, ii)True **(B) i)False, ii)True** (C) i)True, ii)False (D) i) False, ii)False
3. A member function can call another member function directly, without using the dot operator called as
   (A) sub function (B) sub member
   (C) nesting of member function (D) sibling of member function
4. The member function defined within the class behave like ..... functions
   (A) inline (B) Non inline (C) Outline (D) Data
5. Which of the following access specifier protects data from inadvertent modifications?
   (A) Private (B) Protected (C) Public (D) Global

```
class x
{
int y;
public:
x(int z)
{y=z;}
} x1[4];
int main() {
x x2(10);
return 0;}
```

How many objects are created for the above program

(A) 10 (B) 14 **(C) 5** (D) 2

6. State whether the following statements about the constructor are True or False.

i) constructors should be declared in the private section.

ii) constructors are invoked automatically when the objects are created.

(A) True, True (B) True, False **(C) False, True** (D) False, False

4. Which of the following constructor is executed for the following prototype ?

   add display(add &); // add is a class name

   (A) Default constructor (B) Parameterized constructor

   (C) Copy constructor (D) Non Parameterized constructor

SECTION-B

Very Short Answers

1. What are called members?
2. Differentiate structure and class though both are user defined data type.
3. What is the difference between the class and object in terms of OOP?
4. Why it is considered as a good practice to define a constructor though compiler can automatically generate a constructor ?
5. Write down the importance of destructor.

SECTION-C

Short Answers

1. Rewrite the following program after removing the syntax errors if any and underline the errors:

```
#include<iostream>
$include<stdio>
class mystud
{ int studid =1001;
 char name[20];
 public
 mystud( ) { }
 void register ( )
 {cin>>stdid; gets(name); }
void display ( )
{cout<<studid<<": "<<name<<endl;}
}
int main( )
{ mystud MS;
 register.MS( );
 MS.display( );
}
```

2. Write with example how will you dynamically initialize objects?
3. What are advantages of declaring constructors and destructor under public accessibility?
4. Given the following C++ code, answer the questions (i) & (ii).

```
class TestMeOut
{
 public:
 ~TestMeOut() //Function 1
 {cout<<"Leaving the exam hall"<<endl;}
 TestMeOut() //Function 2
 {cout<<"Appearing for exam"<<endl;}
```

```
void MyWork() //Function 3
{cout<<“Answering”<<endl;} };
```

(i) In Object Oriented Programming, what is Function 1 referred as and when does it get invoked / called ?

(ii) In Object Oriented Programming, what is Function 2 referred as and when doesit get invoked / called ?

SECTION - D

Explain in detail

1. Mention the differences between constructor and destructor
2. Define a class RESORT with the following description in C++ :

Private members:

Rno // Data member to store room number

Name //Data member to store user name

Charges //Data member to store per day charge

Days //Data member to store the number of days

Compute( )/*A function to calculate total amount as Days * Charges and if the total amount exceeds 11000 then total amount is 1.02 * Days *Charges */

Public member:

GetInfo( ) /* Function to Read the information like name , room no, charges and days*/

DispInfo( )/* Function to display all entered details and total amount calculated using COMPUTE function*/

3. Write the output of the following

```
#include<iostream>
using namespace std;
class student
{
int rno, marks;
public:
student(int r,int m)
{ cout<<"Constructor "<<endl;
 rno=r;
 marks=m;
}
void printdet()
{
 marks=marks+30;
 cout<<"Name: Bharathi"<<endl;
 cout<<"Roll no : "<<rno<<"\n";
 cout<<"Marks : "<<marks<<endl;
 }
};
int main()
{
student s(14,70);
```

```
s.printdet();
cout<< "Back to Main";
return 0;
}
```

15. Polymorphism

1. Which of the following refers to a function having more than one distinct meaning?
   (A) Function Overloading (B) Member overloading
   (C) Operator overloading (D) Operations overloading
2. Which of the following reduces the number of comparisons in a program ?
   (A) Operator overloading (B) Operations overloading
   (C) Function Overloading (D) Member overloading
3.
```
void dispchar(char ch='$',int size=10)
{
for(int i=1;i<=size;i++)
cout<<ch;
}
```
4. How will you invoke the function dispchar() for the following input?
   To print $ for 10 times
   (A) dispchar(); (B) dispchar(ch,size);
   (C) dispchar($,10); (D)dispchar('$',10 times);
5. Which of the following is not true with respect to function overloading?
   (A) The overloaded functions must differ in their signature.
   (B) The return type is also considered for overloading a function.
   (C) The default arguments of overloaded functions are not considered for Overloading.
   (D) Destructor function cannot be overloaded.
6. Which of the following is invalid prototype for function overloading
   (A) void fun (intx); **(B) void fun (intx);**
   void fun (char ch) ; **void fun (inty);**
   (C) void fun (double d); (D) void fun (double d);
   void fun (char ch); void fun (inty);

SECTION - B

Very Short Answers

1. What is function overloading?
2. List the operators that cannot be overloaded.
3. class add{int x; public: add(int)}; Write an outline definition for the constructor.
4. Does the return type of a function help in overloading a function?
5. What is the use of overloading a function?

SECTION - C

Short Answers

1. What are the rules for function overloading?
2. How does a compiler decide as to which function should be invoked when there are many functions? Give an example.
3. What is operator overloading? Give some examples of operators which can be overloaded.
4. Discuss the benefits of constructor overloading ?

5. class sale {int cost, discount ;public: sale(sale &)};
   Write a non inline definition for constructor specified;

SECTION - D

Explain in detail

1. What are the rules for operator overloading?
2. Answer the question (i) to (v) after going through the following class.

```
class Book {
int BookCode ; char Bookname[20];float fees;
public:
Book( ) //Function 1
{ fees=1000;
 BookCode=1;
 strcpy(Bookname,"C++"); }
void display(float C) //Function 2
{ cout<<BookCode<<":"<<Bookname<<":"<<fees<<endl; }
~Book( ) //Function 3
{ cout<<"End of Book Object"<<endl; }
 Book (int SC,char S[ ],float F) ; //Function 4
};
```

   (i) In the above program, what are Function 1 and Function 4 combined together referred as?
   (ii) Which concept is illustrated by Function3? When is this function called/ invoked?
   (iii) What is the use of Function3?
   (iv) Write the statements in main to invoke function1 and function2
   (v) Write the definition for Function4.

3. Write the output of the following program.

```
include<iostream>
using namespace std;
class Seminar
{ int Time;
public:
Seminar()
 { Time=30;cout<<"Seminar starts now"<<endl; }
void Lecture()
{ cout<<"Lectures in the seminar on"<<endl; }
Seminar(int Duration)
{ Time=Duration;cout<<"Welcome to Seminar "<<endl; }
Seminar(Seminar &D)
{ Time=D.Time;cout<<"Recap of Previous Seminar Content "<<endl;}
~Seminar()
{cout<<"Vote of thanks"<<endl; } };
int main()
{ Seminar s1,s2(2),s3(s2);
s1.Lecture();
return 0;
}
```

4. Answer the questions based on the following program.

```
#include<iostream>
#include<string.h>
using namespace std;
class comp {
public:
char s[10];
void getstring(char str[10])
 { strcpy(s,str); }
void operator==(comp);
};
void comp::operator==(comp ob)
{ if(strcmp(s,ob.s)==0)
cout<<"\nStrings are Equal";
else
cout<<"\nStrings are not Equal"; }
int main()
{ comp ob, ob1;
char string1[10], string2[10];
cout<<"Enter First String:";
cin>>string1;
ob.getstring(string1);
cout<<"\nEnter Second String:";
cin>>string2;
ob1.getstring(string2);
ob==ob1;
return 0; }
```

(i) Mention the objects which will have the scope till the end of the program.

(ii) Name the object which gets destroyed in between the program

(iii) Name the operator which is over loaded and write the statement that invokes it.

(iv) Write out the prototype of the overloaded member function

(v) What types of operands are used for the overloaded operator?

(vi) Which constructor will get executed in the above program? Write the output of the program

16. Inheritance

Choose the correct answer

1. Which of the following is the process of creating new classes from an existing class

   (a) Polymorphism **(b) Inheritance** (c) Encapsulation (d) super class

2. Which of the following derives a class student from the base class school

   (a) school: student **(b) class student : public school**

   (c) student : public school (d) class school : public student

3. The type of inheritance that reflects the transitive nature is

   (A) Single Inheritance (B) Multiple Inheritance

   (C) Multilevel Inheritance (D) Hybrid Inheritance

4. Which visibility mode should be used when you want the features of the base class to be available to the derived class but not to the classes that are derived from the derived class?

   (A) Private (B) Public (C) Protected (D) All of these

5. Inheritance is a process of creating new class from

   (A) Base class (B) abstract (C) derived class (D) Function

6. A class is derived from a class which is a derived class itself, then this is referred to as

   (A) multiple inheritance **(B) multilevel inheritance**

   (C) single inheritance (D) double inheritance

7. Which amongst the following is executed in the order of inheritance?

   (A) Destructor (B) Member function **(C) Constructor** (D) Object

8. Which of the following is true with respect to inheritance?

   (A) Private members of base class are inherited to the derived class with private

   (B) Private members of base class are not inherited to the derived class with private accessibility

   (C) Public members of base class are inherited but not visible to the derived class

   (D) Protected members of base class are inherited but not visible to the outside class

9. Based on the following class declaration answer the questions (from9.1 to 9.4)

```
class vehicle
{ int wheels;
public:
void input_data(float,float);
void output_data();
protected:
int passenger;
 };
class heavy_vehicle : protected vehicle {
int diesel_petrol;
protected:
int load;
public:
void read_data(float,float)
void write_data(); };
class bus: private heavy_vehicle {
char Ticket[20];
public:
void fetch_data(char);
void display_data(); };
```

   9.1. Which is the base class of the class heavy_vehicle?

   (a) Bus (b) heavy_vehicle **(c) vehicle** (d) both (a) and (c)

   9.2. The data member that can be accessed from the function displaydata()

   (a) passenger (b) load (c) Ticket **(d) All of these**

   9.3. The member function that can be accessed by an objects of bus Class is

   (a) input_data(), output_data() (b) read_data() ,write_data()

   (c) fetch_data(), display_data() (d) All of these

   9.4. The member function that is inherited as public by Class Bus

   (a) input_data(), output_data() (b) read_data(), write_data()

(c) fetch_data(), display_data() (d) none of these

SECTION - B

Very Short Answers

1. What is inheritance?
2. What is a base class?
3. Why derived class is called power packed class?
4. In what multilevel and multiple inheritance differ though both contains many base class?
5. What is the difference between public and private visibility mode?

SECTION - C

Short Answers

1. What are the points to be noted while deriving a new class?
2. What is difference between the members present in the private visibility mode and the members present in the public visibility mode
3. What is the difference between polymorphism and inheritance though are usedfor reusability of code?
4. What do you mean by overriding?
5. Write some facts about the execution of constructors and destructors in inheritance

SECTION - D

Explain in detail

1. Explain the different types of inheritance
2. Explain the different visibility mode through pictorial representation
3. Consider the following c++ code and answer the questions

```
class Personal
{
int Class,Rno;
char Section;
protected:
char Name[20];
public:
personal();
void pentry();
void Pdisplay(); };
class Marks:private Personal
{ float M[5];
protected:
char Grade[5];
public:
Marks();
void Mentry();
void Mdisplay(); };
class Result:public Marks
{
float Total,Agg;
public:
char FinalGrade, Commence[20];
Result();
```

```
void Rcalculate();
void Rdisplay();
};
```

3.1. Which type of Inheritance is shown in the program?

3.2. Specify the visibility mode of base classes.

3.3 Give the sequence of Constructor/ Destructor Invocation when object of class Result is created.

3.4. Name the base class(/es) and derived class (/es).

3.5 Give number of bytes to be occupied by the object of the following class:

(a) Personal (b) Marks (c) Result

3.6. Write the names of data members accessible from the object of class Result.

3.7. Write the names of all member functions accessible from the object of class Result.

3.8 Write the names of all members accessible from member functions of class Result.

4. Write the output of the following program.

```
#include<iostream>
using namespace std;
class A
{ protected:
int x;
public:
void show()
{cout<<"x = "<<x<<endl;}
A()
{ cout<<endl<<" I am class A "<<endl;}
~A()
{ cout<<endl<<" Bye ";} };
class B : public A
{protected:
 int y;
 public:
 B(int x1, int y1)
 { x = x1;
 y = y1; }
B()
{ cout<<endl<<" I am class B "<<endl; }
~B()
{ cout<<endl<<" Bye "; }
void show()
{ cout<<"x = "<<x<<endl;
 cout<<"y = "<<y<<endl; } };
int main()
{A objA;
B objB(30, 20);
objB.show();
return 0; }
```

5. Debug the following program

```
%include(iostream.h)
#include<conio.h>
class A()
{ public;
int a1,a2:a3;
void getdata[]
{ a1=15; a2=13; a3=13; } }
class B:: public A()
{ PUBLIC
voidfunc()
{ int b1:b2:b3;
 A::getdata[];
 b1=a1;
 b2=a2;
 a3=a3;
 cout<<b1<<'\t'<<b2<<'t\'<<b3; }
void main()
{ B der;
der1:func(); }
```

17. Computer Ethics and Cyber Security

PART – I

Choose the best Answer.

1. Which of the following is a set of moral principles that regulate the use of computers ?
   (a) piracy (b) programs (c) virus **(d) computer ethics**
2. Commercial programs made available to the public illegally are known as
   (a) freeware **(b) warez** (c) free software (d) software
3. Which one of the following are self repeating and do not require a computer program to attach themselves?
   (A) **(b) worms** (c) spyware (d) Trojans
4. Which one of the following tracks a user visits a website?
   (A) spyware **(b) cookies** (c) worms (d) Trojans
5. Which of the following is not a malicious program on computer systems?
   (A) worms **(b) Trojans** (c) spyware (d) cookies
6. A computer network security that monitors and controls incoming and outgoing traffic is
   (a) Cookies (b) Virus **(c) Firewall** (d) worms
7. The process of converting cipher text to plain text is called
   (a) Encryption **(b) Decryption** (c) key (d) proxy server
8. E-commerce means
   (a) electronic commerce (b) electronic data exchange
   (c) electric data exchange (d) electronic commercialization.
9. 9.Distributing unwanted e-mail to others is calle(d)
   (A) scam **(b) spam** (c) fraud (d) spoofing
10. Legal recognition for transactions are carried out by

(a) Electronic Data Interchange (b) Electronic Data Exchange

(c) Electronic Data Transfer (d) Electrical Data Interchange

Part – II

Very Short Answers

1. What is Harvesting ?
2. What are Warez?
3. Write a short note on cracking.
4. Write two types of cyber attacks.
5. What is a Cookie?

Part-III

Short Answers

1. What is the role of firewalls?
2. Write about encryption and decryption.
3. What are the guidelines to be followed by any computer user?
4. What are ethical issues? Name some.

Part –IV

Explain in Detail

1. What are the various crimes happening using computer?
2. What is piracy? Mention the types of piracy? How can it be prevented?
3. Write the different types of cyber attacks.

18. Tamil Computing

Very Short Answers

1. List the search engines supported by Tamil language.
2. What are the keyboard layouts used in Android?
3. Write a short note about Tamil Programming Language.
4. What is TSCII?
5. Write a short note on Tamil Virtual Academy.