Instructions:  
(1) All questions are compulsory.  
(2) Figures to the right indicate full marks.  
(3) Use of any type of calculator is not allowed.  
(4) Draw a neat diagram wherever necessary.

1. (A) Select correct options from the following and rewrite sentences:  
(a) The time required to move R/W Head to the particular track is called _______.  
   (i) Latency Time  
   (ii) Seek Time  
   (iii) Waiting Time  
   (iv) Response Time  
(b) _______ data structure does not require contiguous memory allocation.  
   (i) Array  
   (ii) String  
   (iii) Pointer Array  
   (iv) Linked List  
(c) Object Oriented Programming uses _______ approach of Programming.  
   (i) Linear  
   (ii) Non-linear  
   (iii) Top down  
   (iv) Bottom up

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[P.T.O.]
(d) The valid attribute of $<A>$ is _______.
   (i) NAME
   (ii) SRC
   (iii) BGCOLOR
   (iv) HEIGHT

(B) Answer any two of the following:
   (a) What is Virtual Memory? Explain any two elements of Virtual Memory.
   (b) What is Data Structure? Define Array and Pointer Array in data structure.
   (c) Give function of following tags with an example of each:
      (i) $<IMG>$
      (ii) $<EM>$
      (iii) $<DL>$

2. (A) Answer any two of the following:
   (a) Give three differences between WORM and VIRUS.
   (b) Write an algorithm to find smallest element in an Array.
   (c) Define the following terms in C++:
      (i) Data Abstraction
      (ii) Operator Overloading
      (iii) Data Encapsulation

(B) Solve any one of the following:
   (a) What is System Call? List any two System Calls for Memory Management, Process Management and Information Management.
   (b) What is Virtual Function in C++? Give any six rules to write Virtual Functions.

3. (A) Solve any two of the following:
   (a) Explain Multiuser and Time Sharing Operating Systems.
   (b) Define:
      (i) Tree
      (ii) Binary Tree
      (iii) Extended Binary Tree
   (c) What is Function Overloading? Give examples of Function Overloading.
(B) Solve any one of the following:

(a) Write an algorithm for Binary Search Method. Explain algorithm with suitable example.

(b) What is Constructor and Destructor in C++? Give example of Constructor and Destructor in a class.

4. (A) Solve any two of the following:

(a) What is File System? List and explain types of File Systems used in OS.

(b) With suitable example explain how tree can be represented in Memory.

(c) What is Inheritance? Explain any two types of Inheritances with Memory.

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(B) Solve any one of the following:

(a) Give features of Windows 98 Operating System.

(b) What is Linked List? How they can be represented in Memory.

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5. Solve any two of the following:

(a) Write a program in C++ to accept two integer values in main function, pass them to function great() using call by value and find greater number, function great() should not return any value.

(b) Write a program in C++ to accept three integers from keyboard and find greatest number with using Condition Control.

(c) Write output of the following HTML program:

```html
<HTML>
<HEAD> <TITLE> abc </TITLE> </HEAD>
<body>
<H1 align = "center"> KBC Restaurant </H1>
<TABLE border = 2>
<TR> <TH Rowspan = "2">
    <Font Size = "5"> Pawbhaji </font>
</TH>
<TH> with cheese </TH>
<TH> 35
```
OR

5. Answer **any two** of the following:

(a) Write a program in C++ to accept a string from keyboard and copy string into another string without using the Library Function. 5

(b) Write a program in C++ to find area of circle using class. 5

(c) Write a program in HTML for the following output:

(i) Arts
   A. History
   B. Geography

(ii) Science
    I. Computer Science
    II. Physics

(iii) Commerce
    O English
    O Accounts