Reg. No. : | | | | | | | | | | |

Question Paper Code: 53827

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Third Semester

Biomedical Engineering

15UIT327 - OBJECT ORIENTED PROGRAMMING AND DATA STRUCTURES

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. _____ can never have a return type.

   (a) Class (b) Constructor (c) Object (d) Function

2. Choose the right option string* x, y;

   (a) x is a pointer to a string, y is a string
   (b) y is a pointer to a string, x is a string
   (c) both x and y are pointer to string types
   (d) none of these

3. A pointer variable which contains the location at the top element of the stack is called

   (a) Top (b) last (c) final (d) end

4. The height of a BST is given as h. The maximum no. of nodes possible in the tree is

   (a) 2^{h-1} -1 (b) 2^{h+1} -1 (c) 2^{h} +1 (d) 2^{h-1} +1

5. The worst case time complexity for linear search is_____

   (a) O(n) (b) o(n) (c) Θ(n) (d) none of the above

PART - B (5 x 3 = 15 Marks)

6. List the rules of operator overloading

7. Explain pointer to a pointer with example.

8. Explain about heaps and its importance.

9. What is a Binary tree?

10. What is the minimum spanning tree?

PART - C (5 x 16 = 80 Marks)

11. (a) Create a class called 'time' that has three integer data members for hours, minutes and seconds, define a member function to read the values, member operator function to add time, member function to display time in HH:MM:SS format. Write a main function to create two time objects, use operator function to add them and display the results in HH:MM:SS format.

Or

(b) Explain Constructor with suitable example. Discuss the types of Constructor with suitable example. (16)

12. (a) (i) What are the different forms of Inheritance? Explain Multiple Inheritance with an example program. (10)

(ii) Write short notes on Virtual Function and Pure Virtual Functions. (6)

Or

(b) Explain File Handling and Exception Handling with suitable example. (16)

13. (a) Discover the appropriate model to insert and delete the element from one end of the array with its code. (16)

Or

(b) Explain the following operations in a circular queue using list implementation (i) Insert an element (ii) delete an element. (16)

14. (a) Explain AVL tree and its rotations in detail with suitable example. (16)

Or

(b) Explain in detail the Dijikstra's algorithm to solve the shortest path problem. (16)

15. (a) Explain the different types of open addressing hashing technique with algorithm. (16)

Or

(b) (i) Explain quick sort with an example. (8)

(ii) Explain Extendible hashing in detail. (8)