2020

COMPUTER SCIENCE

(Theory)

Full Marks : 70

Pass Marks : 21

Time : Three hours

All the questions are compulsory.

The figures in the right margin indicate full marks for the questions.

Select the correct answers from each of the following and rewrite it.

1. Which of the following functions moves the file pointer to a specified location for writting   1

    (a) seekg()

    (b) tellg()

    (c) seekp()

    (d) tellp()

2. Which of the following sorting method is called exchange sort?   1

    (a) Selection sort

    (b) Bubble sort

    (c) Insertion sort

    (d) Shell sort

P.T.O.

3. Which of the following is a dynamic data structure? 1

   (a) Arrays

   (b) Stack

   (c) Queue

   (d) Linked List

4. The number of tuple in a relation is called the ———————— of the relation. 1

   (a) Cardinality

   (b) Attribute

   (c) Domain

   (d) Degree

5. Which of the following logic gates that gives an output of 1 only if an odd number of inputs are 1 1

   (a) NOR gate

   (b) NAND gate

   (c) XOR gate

   (d) XNOR gate

Give the very short answer of the following questions :

6. What is meant by encapsulation in OOP ?   1

7. Give one reason to use inheritance.   1

8. What are the memory management operators?   1

9. Write the drawback of linear search.   1

10. When a stack is said to be overflow?   1

11. Write the use of SELECT with WHERE clause command.   1

12. Write the SQL command to count all the employees in education department
    from the table "EMPLOYEE".   1

13. Find the dual of $A + BC + AB$ 1

14. How many bits that a full adder circuit perform?   1

15. Give one advantage of optical fibre in communication media.   1

Give short answer of the following questions:

16. Define a constructor. What is the difference between default constructor and
    parameterised constructor?   2

17. Open a file called "TEST.DAT"in read and write mode by using open().   2

18. What is free storage pool? When a pointer is said to be a null pointer?   ·   2

19. Convert the following infix expression into prefix and postfix expression.   2

    $(A-(B)/(C+(D))$

20. Write any two advantage of linked list over arrays.   2

21. What is the need for normalization?   2

22. Write the absorption and distributive theorems of boolean algebra.   2

23. Draw the circuit diagrams to realize the following expression.   2

$$F(X,Y,Z)=XY+YZ'+X'YZ$$

24. Mention one point of difference between   2

(a) circular and star topologics

(b) LAN and WAN

25. Write any two advantage of E-mail over ordinary postal system.   2

Give answer of the following questions :

26. Define a class employee with the following specifications :   3

Private members :

a,b,c   integers

Public members:

input( ) function reads the value of a,b,c.

big( ) function calculates the biggest number and return it.

output( ) displays the biggest number on the screen.

27. Consider the following declarations and answer the questions given below: 3

```
class M
    {
    int A,B;
    protected : int C,D;
    public : int E;
            void input( );
            void output( );
    };
class N : protected M
    {
    int X.Y;
    protected : void read( );
    public : void write( );
    };
class p : private N
    {
    int Z;
    void getdata( );
    public : void putdata( );
    };
```

(a) Name the base class and derived class of class N.

(b) Name the data members that can be accessed from the function write( ).

(c) Name the protected member functions of class N.

28. Sort the following numbers manually using the bubble sort method : 3

    17,12,35,22,8

29. What is a decoder ? Draw a logic diagram for 2 to 4 decoder. 3

30. (a) What do you mean by network security?

    (b) What is e-commerce? Write the three types of e-commerce. 3

31. Write a C++ program to add two given values of time (in hours and minutes) using functions that return objects. 5

32. Write a C++ program to find the biggest and smallest number in a list of numbers using pointers. 5

33. Write a C++ program to merge two sorted arrays into a single sorted array. 5

34. (a) Explain the file access methods.

    (b) Write the use of ALTER TABLE and UPDATE commands. 5