



Computer Science  
(41)

## SCIENCE ENTRANCE ACADEMY IV Preparatory Exam

DATE:23-11-2019

Roll No:

Time:3hrs

Total Marks : 100

### PART – A

I. Each question carries ONE mark.

10 X 1 = 10

- 1) What is the use of SMPS?
- 2) For the truth table given below, what type of logic gate does the output F represents?

A	B	F
0	0	1
0	1	1
1	0	1
1	1	0

- 3) What is non-linear data structure?
- 4) What is meant by array of object?
- 5) What is the purpose of new operator in C++?
- 6) What is an entity?
- 7) What is Hub?
- 8) Expand FTP.
- 9) Give the general syntax of URL.
- 10) What is web scripting?

### PART – B

II. Each question carries TWO marks.

8 X 2 = 16

- 11) State and prove complementarity law.
- 12) Find the complement of expression  
 $F = X\bar{Y} + X\bar{Z} + \bar{X}Y$
- 13) What are the base class and derived class with reference to OOP?
- 14) What is the destructor? Which is the operator used with destructor function?
- 15) Differentiate between put() and get() functions with reference to **text** files.
- 16) Mention the **different** database users.
- 17) What is the difference between ORDER BY and GROUP BY clause used in SQL? Give example for each.
- 18) Write the difference between half duplex and full duplex communication modes.

## PART – C

**III. Each question carries THREE marks.**

**8 X 3 = 24**

- 19) What is the purpose of ports, buses and disk controllers in the I/O system?
- 20) Construct logic diagrams for OR and NOT Operations.
  - a) Using only NOR Gates
  - b) Using only NAND Gates
- 21) Write the algorithm for insert an element in to a one dimensional array.
- 22) Explain the operations performed on pointers.
- 23) Write the member functions belong to ifstream class.
- 24) Mention any three advantages of random/direct access file organization.
- 25) Define e-commerce. Write the various technologies and service used in e-commerce.
- 26) Explain the general structure of HTML.

## PART-D

**IV. Answer any TEN questions.Each question carries FIVE marks.**

**10 X 5 = 50**

- 27) Find the minimum POS expression of  $Y(A, B, C, D) = \pi(0, 1, 3, 5, 6, 7, 10, 14, 15)$ .
- 28) Write the two main operations performed on queues? Write an algorithm for deleting an element from a queue.
- 29) What is sorting? Write an algorithm for insertion sort.
- 30) Give the difference between procedural oriented programming object oriented programming.
- 31) Write the general syntax for defining and declaring classes and objects and explain the terms. Give an example.
- 32) When is function overloading is needed? Write any two advantages and restrictions on overloading functions.
- 33) Explain the features of default constructor. Write the syntax and example for default constructor.
- 34) What is inheritance? Write the advantages of inheritance in C++.
- 35) Write the difference between hierarchical data model and network data model.
- 36) What are group functions in SQL? Explain any four group functions with example.
- 37) What is networking? Explain the goals of networking.

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