

NEW

2018

Part I

COMPUTER SCIENCE

PAPER—I

(General)

Full Marks : 90

Time : 3 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Group—A

Answer any two questions :

2×15

1. (a) What is ALU ?

2

(b) Write some differences between system and application software.

4

(Turn Over)

- (c) Write functions of CPU. 3
- (d) What is Flowchart? Explain its notation. 4
- (e) What is EPROM? 2
2. (a) What is Bit and Byte? 2
- (b) Explain why NAND gate is called universal gate? 3
- (c) State De-Morgan's Law. 3
- (d) Write difference between SRAM and DRAM. 4
- (e) Explain 4×1 Multiplexer, with suitable circuit. 3
3. (a) Explain J. K. Flip-Flop with truth table. 4
- (b) What is Race Around Condition? How it can avoid? 4
- (c) Write some benefit of using Algorithm. 3
- (d) What is machine language and Assembly language? 4

4. (a) Convert the following : 2+2
- (i) $(978)_8 = ()_2$
- (ii) $(4BD)_{16} = ()_{10}$
- (b) How Half Adder is used to represent full Adder. Draw circuit and explain. 6
- (c) Write a short note on Dot-matrix printer. 3
- (d) What is ASCII ? 2

Group—B

Answer any *five* questions : 5×8

5. (a) Write an algorithm for Bubble Sort technique. 4
- (b) What is circular Queues ? 2
- (c) Explain PUSH operation on stack. 2
6. (a) What is Array ? What are the benefits of using array ? 2+3
- (b) Write an Algorithm for linear search. 3

7. (a) Write difference between for and while loop. 4
- (b) Explain conditional operator in C with proper example. 4
8. (a) What is dynamic memory allocation? 3
- (b) Write a program to find Factorial of number by using recursion. 5
9. (a) Write some differences between Break and Continue statement in C. 4
- (b) Subtract 45 From 63 By using 2's complement method. 4
10. (a) What is BCD? How it can represent. 3
- (b) What is complete Binary tree. 2
- (c) Find out the time Complexity of Bubble Sort. 3
11. (a) What is preprocessor directive in C. 2
- (b) Explain preorder, Inorder traversal of a tree with example. 6

Group—C

Answer any *five* questions :

5×4

12. (a) What is keyword in C ?
- (b) What is DMA ? 2+2
13. (a) $AB + BC$, Represent this By using NAND gate. 2
- (b) What is Cache memory ? 2
14. (a) What is pointer in C ?
- (b) Explain static variable in C. 2+2
15. (a) Write a C program to generate Fibonacci series.
- (b) What is magnetic tape ? 3+1
16. (a) What is Space Complexity ? 2
- (b) Find out truth table of a subtractor and write the expression. 2

17. (a) $(1110.011)_2 + (1101.100)_2 = (?)_2$ 3

(b) What is Stack? 1

18. How Binary Search is happened? Give an examples. 4

19. Write down the differences between array and structure. 4
