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BSC/Part-II/COS(G)-III(Prac)(Set-1)

2019

Part – II

COMPUTER SCIENCE

(General)

Paper – III

(Practical)

Set – 1

Full Marks – 100

Time : 3 Hours

The figures in the right-hand margin indicate marks.

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

Answer **any** three questions taking **one** from each group (On lottery basis).

GROUP – A

(Digital Electronics : 25 marks)

1. Design a half adder using NAND gates and verify its truth table.
2. Set up a combinational circuit to implement the following Boolean function: $f(x, y, z) = x + y'z'$. Verify the corresponding truth table.

P.T.O.

3. Design a full subtractor using NAND gates and verify its truth table.
4. Design and implement a D flip-flop.
5. Design and implement a 4 bit adder using flip-flop.
6. Design and implement a 3×8 Decoder.
7. Design and implement a two bit digital comparator.
8. Design and implement a 4×1 multiplexer.

GROUP – B

(Programming in C and Data Structure : 35 Marks)

1. Write a program to check if a year is leap year or not.
2. Write a program in C to find the length of a string without using the built-in library function strlen().
3. Write a program to check if a string is palindrome or not.
4. Write a program in C to implement a stack using array and demonstrate push and pop operation.
5. Write a program in C to find the factorial of an integer using recursion.
6. Write a program to search an element from a list using binary search.
7. Write a program to sort a list of elements using Bubble sort.
8. Write a program to add two matrix.

GROUP-C

(MS Word, Excel and Power Point : 20 Marks)

1. Write a letter inviting your friends to your birthday. Use mail merge to compose the mail for at least five different recipients.
2. Create a Power Point presentation with at least five slides to demonstrate your institution. Use images, animations etc. Wherever necessary.
3. Consider the following data table.

| Name | Total Marks | Grade |
|----------|-------------|-------|
| Arindam | 90 | |
| Bina | 76 | |
| Chinmoy | 64 | |
| Debasish | 48 | |
| Enakshi | 88 | |

Create the above table using MS-Excel and calculate grades to each student assuming the following conditions :

Total Marks \geq 80: Grade A

$60 \leq$ Total Marks $<$ 80: Grade B

$40 \leq$ Total Marks $<$ 60: Grade C

Total Marks $<$ 40: Grade D

- Your department is going to organize a seminar. Create a leaflet for this purpose using MS-Word.
- Plot $\sin(x)$ wave using MS-Excel. Use the range of x from 0° to 360° and interval of 15° .
- Create the following structure :

| Name | Basic | DA | HRA | PF | Gross |
|------|-------|----|-----|----|-------|
| AAA | 25000 | | | | |
| BBB | 37000 | | | | |
| CCC | 18000 | | | | |
| DDD | 44000 | | | | |
| EEE | 16000 | | | | |

Perform the following :

- $DA = 85\%$ of Basic
- $HRA = 15\%$ of Basic
- $PF = 12\%$ of Basic
- $Gross = DA + HRA + PF$.

Viva-voce : 10 Marks

Practical Note Book : 10 Marks