#### NATIONAL UNIVERSITY

B. Sc. (Honors) in Computer Science and Engineering
Part-I, First Semester Final Examination, 2018
CSE-510202 (Structured Programming Language Lab)

Time: 3 Hours Full Marks: 40

## Section: A

#### Answer any TWO questions.

10x2=20

- 1. Write a program to find the area of a circle.
- 2. Write a program to find the all-possible roots of a quadratic equation.
- 2. Write a program that takes an integer as input and display it in reverse order.
- 4. Write a program to convert any integer to its binary equivalent.
- 5. Write a program in C to determine and print the sum of the following harmonic series for a given value of n:

$$s = 1 + \frac{1}{2^2} + \frac{1}{3^3} + \dots + \frac{1}{n^n}$$

- 6. Write a program in C to compute the sum of the digits of a given integer number.
- 7. Write a program that reads a string from keyboard and determines whether it is a palindrome or not.

### Section: B

# Answer any TWO questions.

10x2=20

- . Write a program to multiply two matrices.
- 2. Write a program to evaluate the expression using user defined function:

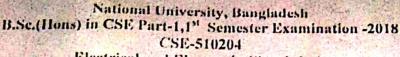
$$f(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$$

- 3. Write a program using an array of structure to read the number of three subjects for n students and sort them according to their position. (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> ....).
- 4. Write a program using pointers to compute the sum of all elements stored in an array.
- 5. Write a program to copy the contents of one tile into another.
- 6. Write a program to read data from keyboard, write it to a file called, INPUT, again read the same data from the INPUT file and display in on the screen.
- 7. Write a program to open a file named INVENTORY and store in it the following data:

Item Name AAA-1	Number 123	Price 15.55	Quantity 150
CCC-3	527	32.15	115

Extend the program to read this data from the file INVENTORY and display the inventory table with the value of each item.

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Electrical and Electronic Circuit Lab

Full Marks: 40

Time: 3 Hours

There are two parts in this question. Perform one experiment from each part.

### Part A (Electrical Circuit)

- 1) Observe the frequency response of a resistor, an inductor and a capacitor
- 2) Design and construct a RC circuit and find out the time constant.
- 3) Determine the transient response of series RC circuit.
  - 4) Design and construct a series RLC circuit, study the frequency response and calculate the resonant frequency.
  - 5) Design and construct a parallel RLC circuit, study the frequency response and calculate the resonant frequency.

5) Verzify Kirzchhoff's voltage and cutment law, verify V-I Characteristics cutive of Ohm's law.

Part B (Electronic Circuit)

- 1) Design and verify the operation of an inverting amplifier using op-amp.
- 2) Design and verify the operation of a non-inverting amplifier using op-amp.
- 3) Design, implement and test the operation of an integrator circuit using op-\_amp.
- 4) Design, implement and test the operation of a window comparator circuit using op-amp.
- 5) Design, construct and study the operation of a band pass filter.
- 6) Verify input characteristics curve of a transistor of common emitter configuration.

  R) Verily I-V characteristics outrue of a Zener diode.

Circuit Design : 05 Circuit implementation: 05 Result : 05 Viva