FPT Education

TRƯỜNG ĐẠI HỌC FPT

PRACTICAL EXAMINATION

Subject code: PRF192

Duration : 85 minutes

Requirements:

+ Write theo code on 1 file, named the file: **prf192sp23.c**

+ Students are not allowed to use input/output statements for questions 1 to 4. **All input data must be passed vie function parameter**, and the **output should return by arguments or return value**.

1. Write a function to calculate area of a trapezoid. (1 marks)
   Hint: Formula for trapezoid area: S= (top_edge +bottom_edge) x height /2
   The function should return -1 for input is invalid.
2. Write a function to calculate the sum of arithmetic sequence (2 marks)

$$S(x,n) = -x + \frac{x^2}{(1+2)} - \frac{x^3}{(1+2+3)} + \frac{x^4}{(1+2+3+4)} + \cdots + (-1)^n \frac{x^n}{(1+2+\cdots+n)}$$

3. Write a function that generates an array of integers with n elements, where each element has a unique random value. (2 marks)
4. Write a function to process the student's name and ID information to generate their email address. (2 marks)
   Example:
   Full name: Nguyen Duc Huy
   Student ID: de170345
   Email address: nguyenduchuyde170345@fpt.edu.vn
5. Write main() function to invoke the 4 functions above:
   + Offer text menu for user choice to execute the functions.(1 mark)
   + For each choice, demostration of successfully running the selected function (0.5 mark for each)
   Note: For each option, allow calling the function by passing specific values instead of requiring input from the keyboard.

Note: Student submit your exam works follow the instructions of the examination officer

The test must not show student personal information. Any sign of personal information on the test is considered invalid and handled according to regulations