Instructions for preparing the solution script:

- Write your name, ID#, and Section number clearly in the very front page.
- Write all answers sequentially.
- Start answering a question (not the part of the question) from the top of a new page.
- Write legibly and in orderly fashion maintaining all mathematical norms and rules. Prepare a single solution file.
- **Submit the solution [pdf only] through this form-** `https://forms.gle/Nu4T7dHkSeYrGjTa7`

A. Answer the following questions:

1. (1 mark) Evaluate the exact integral value $I(f)$ of the function $f(x) = \frac{1}{x(lnx)^2}$, which is continuous on the interval $[e, e+1]$.
2. (6 marks) Consider the function $f(x) = 3x^2 + 25x + 0.2$. Now, compute the numerical intergral by using Trapezium rule (Newton-Cotes formula with $n = 1$) over the interval $[0, 2]$ and also find the relative error in percentage.
3. (6 marks) Consider the function $f(x) = sin(x) + e^{0.5x}$ which is to be integrated on the interval $[0, 2]$. Now, compute the numerical integral by using Newton-Cotes formula with $n = 2$ (Simpson's rule) and also find the relative error in percentage.
4. (7 marks) Consider the function $f(x) = x + e^x$ which is continuous on the interval $[1, 3]$. Now, use Composite Newton-Cotes formula to find the numerical integration for $m = 3$ and also find the relative error in percentage.