

THE OPEN UNIVERSITY OF SRI LANKA
 B.Sc/B.Ed Degree Programme
 Applied Mathematics – Level 05
 ADU5320 – Introduction to MATLAB software
 No Book Test (NBT) – 2023/2024
DURATION: ONE (01)–HOUR



Date: 02.02.2024.

Time: 2.30 p.m.- 3.30 p.m.

ANSWER ALL QUESTIONS.

1. a) Using **while loop**, write a MATLAB program to determine and display **how many terms** in the series, 2^k , where $k = 1, 2, 3, \dots$ are required for the sum of the terms to exceed 2000.
 b) Modify the above program so that it will also display the **sum** of the number of terms identified in part a).

2. a) Write a user-defined MATLAB function with two input and two output arguments that determines the height in centimeters (cm) and mass in kilograms (kg) of a person from his height in inches (in.) and weight in pounds (lb).
 (Hint: 1 in. =2.54 cm, 1 lb=0.4536 kg)
 b) Using **for loop**, write a MATLAB program to plot the following function.

$$y = \begin{cases} \cos x & \cos x \geq \sin x \\ \sin x & \cos x \leq \sin x \end{cases} \text{ as a function of } x \text{ for } 0 \leq x \leq 4\pi.$$
