MAT 1206 – Introduction to MATLAB
Quiz 2
Time Allowed: 30 minutes

Quiz: Matrix Operations and Plotting/Graphics

1. Given the following matrices:

   A = [1 2; 3 4], B = [5 6; 7 8]

   a) Calculate the matrix product

   b) Calculate the element-wise product of matrices

   c) Calculate the matrix transpose of A

   d) Calculate the inverse of matrix B

2. Create a MATLAB script that generates a plot of the function f(x) = x^2 - 3x + 2. The plot should include:

   a) A line plot of the function f(x) for x values ranging from -5 to 5.

   b) X-axis label: 'x'

   c) Y-axis label: 'f(x)'

   d) Title: 'Plot of f(x) = x^2 - 3x + 2'

3. Generate a 3D surface plot of the function g(x, y) = sin(x) + cos(y) over the range -pi to pi for both x and y. The plot should include:

   a) A surface plot of the function g(x, y).

   b) X-axis label: 'x'

   c) Y-axis label: 'y'

   d) Z-axis label: 'g(x, y)'

   e) Title: 'Surface Plot of g(x, y) = sin(x) + cos(y)'

4. Consider the following data matrix which includes continuous assignment marks of 5 students. Each column represents a student while each row represents an assignment.

50	60	75	85	49
38	75	69	84	72
67	84	67	92	73
45	59	68	81	72

   a) Create a matrix named ‘data’ and store the above data.
   b) Calculate the average assignment mark of each student and store in vector ‘Average_marks’.
   c) Generate a bar chart to graphically represent the ‘Average_marks’ of the five students.