UIET

Mechanical Engineering Department

MST II

Time: 1 hour 30 min   **Max Marks: 30**

Subject: Computer Programming (MATLAB)   **Class: BE 3rd Sem**

Attempt all three Questions. Each Question carries 10 marks

1) a) Use plot command to plot the curve:

   $y = 12\ x^2$

   such that *-4 < x< 4.*

   b) Write a MATLAB script to find the maximum between three numbers, where user is prompted to enter three numbers, and the maximum of the three numbers is outputted.

2) a) The *n*th term of a series is given by the following expression

   $$T_n= (2n-1)/n(n+1)(n+2)$$

   Find the first third fifth seventh fifteenth and nineteenth term of the series using a vector(row/column) matrix. Find the sum of first ten terms.

   c)   Write a MATLAB script which prompts user to enter any number, alphabet or special character and check whether the user entered a number or not and. If the user entered a number output the string, "*you entered a no".* If the user enters an alphabet output the string *"you entered an alphabet* "An if the user enters a special symbol output the string *"you entered a special symbol".*

3) a) The *n*th term of a series is given by the following expression

   $$T_n = \sqrt[3]{(n^3 + 1)} - n$$

   Find the first ten even terms of the series and find the sum of their squares. Use matrix notation of MATLAB to accomplish this task.

   b) Create a *4x4* matrix with random numbers using rand command, separate a 2x2 submatrix from the given matrix consisting elements of second and third row and second and third column, unroll the given submatrix into a column matrix.