

Mathematics [SEC]**[NEP]****B.Sc. Third Semester End Examination-2024****(Regular & Supplementary Paper)****PAPER-MTM SEC 301****Full Marks: 20****Time: 01 Hrs***The figures in the right hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.**Illustrate the answers wherever necessary.***1. Answer any two questions of the following: 2x2= 4****a) Write a programme Segment to plot function** $y = \sin(x), 0 \leq x \leq 2\lambda$ internal spacing $\frac{\pi}{6}$ **b) Use a single command to create a row vector(assign it to a variable named) with 13 elements such that** $b = 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 7 \ 6 \ 5 \ 4 \ 3 \ 2$

Do not type the elements explicitly.

c) Explain the use of the functions ceil() and rem() with an example.**d) If $>> A = 1:9; B = 9 - A; >> tf = A > 4$ What is output?**

(2)

2. Answer any FOUR questions of the following: **4x4 = 16**

- a) Define the meshgrid function in MATLAB. Write script in MATLAB to make a mesh plot for the function

$$f(x) = \frac{xy}{x^2 + y} \text{ over the domain } -1 \leq x \leq 3 \text{ and } 1 \leq y \leq 5.$$

- b) Write a program in MATLAB to arrange the set of values in increasing order.

- c) Write a function file (name it chp7one) for the function

$$f(x) = \frac{x^4 \sqrt{3x+5}}{(x^2+1)^2}. \text{ Write the program code such that } x \text{ can}$$

be a vector and the function gives the value for

i) $x=6$

ii) $x=1,3,5,7,9$ and 11

- d) Write a program in MATLAB to find the value $P(n,r)$ where $r \leq n$

- e) Create three row vectors:

$$a = [7 \ 2 \ 3 \ 1 \ 0], b = [-3 \ 10 \ 0 \ 7 \ -2], c = [1 \ 0 \ 4 \ -6 \ 5]$$

- i) Use the three vectors in a MATLAB command to create a 3×5 matrix in which three rows are the vectors a, b and c .

(3)

- ii) Use the three vectors in a MATLAB command to create a 5×3 matrix in which the columns are the vectors a, b and c .

- f) Write a program to find the solution of a system of equations

$$2x + 3.1y + 4.2z = 10$$

$$3.1x + 6y + 8z = 11$$

$$x + 2.3y + .6z = 15$$
