

UNIVERSITY OF EDUCATION

"UExam" Semester-II, 2019

BS Mathematics, Session:2018-2022

Course Code: COMP1113

Subject: Computing Tools for Mathematics

SECTION: I (MCQ's)

Time Allowed: 15 Minutes

Max. Marks: 12

NOTE: Encircle the correct/ best answer in each of the followings. Each Question carries 1 mark. Use of remover carries zero mark. Cutting and Overwriting is not allowed.

No. 196

Roll No. (in fig.) _____

Roll No. (in words) _____

Candidate's Signature. _____

Signature of Addl. Supdt. _____

Q1.

• In MATLAB, the notation for element by element 'Right Division' is:

- (a) ./ (b) / (c) /. (d) .*

• In MATLAB, p less than or equal to q is written as:

- (a) $p < q$ (b) $p \leq q$ (c) $p <= q$ (d) $p = < q$

• To comment a command in MATLAB, the symbol used:

- (a) % (b) \$ (c) \$\$ (d) %%

• If step size is not specified then _____ is taken as default value of step size:

- (a) +1 (b) -1 (c) 2 (d) 0

• If x and y are the initial and final values and 0.05 is step size then the step size in MATLAB is expressed as:

- (a) $x; 0.05; y$ (b) $x: 0.05: y$ (c) $x, 0.05, y$ (d) $x * 0.05 * y$

• $y = \sqrt{x}$ can be written in MATLAB as:

- (a) $y = \sqrt{x}$ (b) $y = x^{1/2}$ (c) $y = \text{sqrt}(x)$ (d) $x = \sqrt{y}$

• If A is a matrix of order 5. The command $A(2, :) = []$ will.

- (a) remove 2nd row (b) remove 2nd column (c) 2nd row and column (d) none of above

• If A is an 3×1 array, then $A(2)$ is:

- (a) The second entry in column vector (b) The function evaluated at 2
(c) The second entry in row vector (d) A times 2

• Which of the following MATLAB expression gives -1 :

- (a) $\cos(180)$ (b) $\cos(pi)$ (c) $\cos(\pi)$ (d) None

• Formula for Area of circle in MATLAB:

- (a) $\pi * r^2$ (b) $\pi * r * r$ (c) $pi * r * r$ (d) None

• If $A = [6 \ 7; 8 \ 9]$ the resulting matrix is:

- (a) $\begin{bmatrix} 6 & 7 \\ 8 & 9 \end{bmatrix}$ (b) $\begin{bmatrix} 6 & 8 \\ 7 & 9 \end{bmatrix}$ (c) $\begin{bmatrix} 6 & 8 \\ 9 & 7 \end{bmatrix}$ (d) None

• The column matrix $\begin{bmatrix} 3 \\ 4 \\ 5 \end{bmatrix}$ = ---

- (a) $[3; 4; 5]$ (b) $A = [3 \ 4 \ 5]$ (c) $A = \{3; 4; 5\}$ (d) $A = [3, 4, 5]$

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Time Allowed: 75 Minutes

Max. Marks: 30

Section II (Short Answer)

Q.2- Write short answers of the following.

3x5 = 15

- i. Use Matlab command to find the volume of sphere of radius 2m.
- ii. Define the following commands
(i) fix (ii) ceil (iii) sort (iv) ones
- iii. Use Matlab command to find the magnitude of vector $J=[0 \ 3 \ 4]$.
- iv. Evaluate the product of polynomials $(s+3)$, $(s+6)$ and $(s+2)$.
- v. Find the sum of the series $1 + r^1 + r^2 + r^3 + \dots$ for $r = \frac{3}{2}$ and $n = 30$

Section III (Essay Type)

Answer the following Questions

6x3 = 18

- Q.3:- Use Matlab to compute $\lim_{\theta \rightarrow \frac{\pi}{2}} \frac{\cos \theta}{1 + \sin \theta}$
- Q.4:- Write a Matlab program to find the nature of the roots $3x^2 - 4x + 5 = 0$
- Q.5:- Write a program to find the tri-diagonal matrix of order 15×15