

(ii) Let $f(x) = \frac{x^3 \cos(x)}{x^2 + 1}$. Write the commands in Maple to find $f'(x)$, $f''(x)$, $f'(-1)$ and $f''(0)$.

(iii) Explain the following commands in Mathematica with example :

- (a) For loop
 (b) Do loop
 (c) Print
 (d) Module

(iv) Write a program to solve the following system of equations in MATLAB/Octave :

$$3u + v - t = 10$$

$$u + 4v - 7w + 2t = 15$$

$$-v + w - 6t = -4$$

$$7u - 2v + w + t = 8$$

(v) Write the commands in R for the following :

(a) Put the following values into a variable 'score'

30 45 63 72 21

21 45 22 88 61

10 36 20 46 55

21 11 07 54 19

(b) Create a box plot of score.

(c) Create a stem and leaf plot of score.

(d) Create a normal probability plot of score.

8/5/2018

morning

This question paper contains 4 printed pages]

Roll No.

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S. No. of Question Paper : 6841

Unique Paper Code : 32353401/42353404 HC

Name of the Paper : Computer Algebra Systems and Related Softwares

Name of the Course : B.Sc. (H) Mathematics/B.Sc. Math Sc./ B.Sc. (Prog.)

Semester : IV

Duration : 2 Hours

Maximum Marks : 50

(Write your Roll No. on the top immediately on receipt of this question paper.)

This question paper has four questions in all.

All questions are compulsory.

1. Fill in the blanks : 5×1=5

(i) The rank of a matrix A in MATLAB is given by the command.....

(ii) In R, the.....function produces stem and leaf plot of an array.

(iii) The command for $\log_{10} 5$ in Mathematic is.....

(iv)is the command to write the matrix $\begin{bmatrix} 2 & 3 \\ 7 & 1 \end{bmatrix}$ in

Maxima.

P.T.O.