

2496-A

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

(i) Put the following values into a variable

d :

3, 5, 7, 3, 2, 6, 8, 5, 6, 9, 4, 5, 7, 3, 4.

(ii) Find mean of d.

(iii) Find the largest value in d.

(iv) Find variance of d.

5/9/2019

[This question paper contains 8 printed pages]

Your Roll No. :

Sl. No. of Q. Paper : **2496-A IC**

Unique Paper Code : 32353401

Name of the Course : **B.Sc. (Hons.)
Mathematics : SEC**

Name of the Paper : Computer Algebra
Systems and related
Softwares

Semester : IV

Time : 2 Hours **Maximum Marks : 38**

Instructions for Candidates :

- Write your Roll No. on the top immediately on receipt of this question paper.
- This question paper has **six** questions in all.
- All** questions are compulsory.

Unit - 1 (CAS)

Note : The answers should be written in only **one** of the CAS : Maxima/Mathematica/Maple or any other.

1. Fill in the blanks :

1×5=5

- (a) command is used to find the product of two matrices m, n.
- (b) The function..... is used to find the n^{th} prime.
- (c) command is used to find the value of exponential constant up to 20 digits.
- (d) The symbol is used as delayed operator.
- (e) command is used to find the transpose of a matrix.

2. Attempt any **six** parts from the following :

1.5×6

- (a) Write the command to evaluate the expression $2x^2+x=1$.
- (b) Write the command to plot the functions $\text{Sin}(x)$ and $\text{Cos}(x)$ in the range $-10 < x < 10$.
- (c) Write the command to evaluate (i) $7^{22} \bmod 23$
(ii) $\log_{10}(5.65)$.
- (d) Write the command to create a 6×6 sparse matrix with non-zero entries :
(1,2) = 3; (4,3) = 3; (4,5) = 7; (6,1) = 4

- (e) Write the command to evaluate $\int_{1/4}^{1/2} \frac{1}{x^2} dx$.

(ii) find the 20%,50%,40% quantiles.

(iii) create the stem and leaf plot for the above vector.

(b) For the following two dimensional data,

data 1	data 2	data 3
23	25	34
23	45	12
21	32	21
21	47	43

write the command to :

- (i) display the first and third rows.
- (ii) determine the structure of the data object.
- (iii) For the above data, draw a bar chart with appropriate labels.