

INDIAN STATISTICAL INSTITUTE
CHENNAI CENTRE
M.STAT First Year
2015-16 Semester II

Introductory Computer Programming:
Final Examination

Total Marks 30.

Duration: 3 hours

1. Write an algorithm and R program to generate binomial random variable using inverse transform method. 3+7
2. Write R program to find the cumulative distribution function of a standard normal random variable using uniform random numbers. 5
3. Write an algorithm and R program to generate mixture of gamma random variable, where $X_j \sim \text{Gamma}(2, 1/j)$, $j = 1, 2, \dots, 5$ are independent and the mixing probabilities are $\theta_j = j/15$. 5
4. Write R program to generate uniform variates on d-sphere. 5
5. Analyse the data set attached with the question paper. The instructions are given with the attached data set. 10