

Code: R7411503**R07**

IV B.Tech I Semester (R07) Supplementary Examinations, May 2012

PERFORMANCE EVALUATION OF COMPUTER SYSTEMS

(Computer Science & Systems Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. An experiment consists of three independent tosses of a fair coin. Let:
X= The number of heads.
Y= The number of head runs.
Z= The length of head runs.
A head run being defined as consecutive occurrence of at least two heads, its length.
Then being the number of heads occurring together in three tosses of the coin.
Find the probability function of: (i) X (ii) Y (iii) Z (iv) X + Y (v) XY and construct probability labels and draw their probability charts.
2. (a) Prove that the first-order density function of a strict sense stationary process $\{x(t)\}$ is independent.
(b) Discuss MTTF of a parallel redundant system.
3. (a) Define Markov chain. Distinguish between discrete parameter Markov chain and continuous parameter Markov chain.
(b) Derive stochastic matrix for one step transition probabilities.
4. (a) Explain the algorithm for SIMD matrix multiplication.
(b) Describe a bit serial associative memory organization with a neat diagram.
5. Explain how to evaluate the performance of SMID array processors using a space-time approach.
6. (a) Discuss briefly the basic organizations of the inter connection network.
(b) Explain the process of context switching in a processor with multiple register sets.
7. Explain briefly about deterministic and stochastic scheduling models for a multiprocessor system.
8. (a) Give the characteristics of the Cray – 1 computer system.
(b) Explain with neat diagrams the 4 types of vector instructions in Cray system.
